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Air Force Expansion in Australia

It is about seven years since Sir John Salmond visited Australia at the invitation of the Commonwealth Government and drew up a report in which he made recommendations for the reorganisation of the Royal Australian Air Force. The Government of the day accepted his scheme, but the financial depression intervened and prevented it from being carried out. Since recovery from the depression, the Commonwealth has again begun work on the Salmond scheme, and as a result a number of Demons have been ordered to replace the Wapitis in the General Purpose Squadrons, and Seagull V amphibians to replace the original Seagulls with Lion engines. The two wooden Southamptons still represent Australia's investment in the larger class of flying boat. The first order of Demons and Seagulls was by way of replacement, but now a definite increase in the number of R.A.A.F. units is to be made. Until the scheme of expansion was begun, the forces of the R.A.A.F. consisted of two General Purpose squadrons (equipped with Wapitis), No. 3 Squadron being stationed at Richmond, N.S.W., and No. 1 Squadron at Laverton, Victoria, and a Coastal Reconnaissance flight at Point Cook, Victoria, which had the original brand of Seagull and also the wooden Southamptons. Training in air fighting was given on a small number of Bulls. Australian squadrons are organised somewhat on the lines of Cadre squadrons in the R.A.F., in that both have a regular element and a citizen air force element. The proportions, however, are different, for, whereas a cadre squadron of the R.A.F. has only sufficient regular personnel to man one flight (whether there are two or three flights in the squadron), in Australia the regular personnel is sufficiently numerous to take all nine machines of the squadron into the air, while the officers and airmen of the Citizen Air Force form a squadron reserve, though they usually play their part in all exercises.

Some months ago the Australian Minister for Defence, Mr. Parkhill, announced that in the present year, 1935-36, an extra £1,100,000 would be provided for the R.A.A.F., bringing the total allotment for the year up to £6,734,150, while an additional £400,000 would be provided next year. This very healthy sum is being expended in providing the following additional units: (*a*) Two General Purpose squadrons, a Wing headquarters, and a stores depot at Richmond, N.S.W.; (*b*) one G.P. squadron at Laverton, and an additional Coastal Reconnaissance flight, which will convert the existing flight at Point Cook into a squadron; and (*c*) a Citizen Air Force squadron at Perth. The Demons which have been ordered are equipped as G.P. machines, and will displace the Wapitis, while the Coastal Reconnaissance squadron will be equipped with the new Seagull V type, of which twenty-four have been ordered. Seagulls will also be used as catapult machines in the cruisers of the Royal Australian Navy, and will be carried in the seaplane carrier *Albatross*.

A Good Beginning

This increase, though it still only fulfils a part of the Salmond programme, is very important; and the decision to raise a Citizen Air Force squadron at Perth is particularly welcome. Hitherto, Western Australia has not been given any share in the air defence scheme of the Commonwealth, and possibly that was one of the considerations which induced that State to express dissatisfaction with its position in the Commonwealth and to appeal for reversion to an independent status. One squadron, of course, would not guarantee the safety of the long coastline of Western Australia, but it marks a beginning, and an increase may follow in due course.

There are, in fact, indications that Australia is not going to rest content with the expansion just outlined.

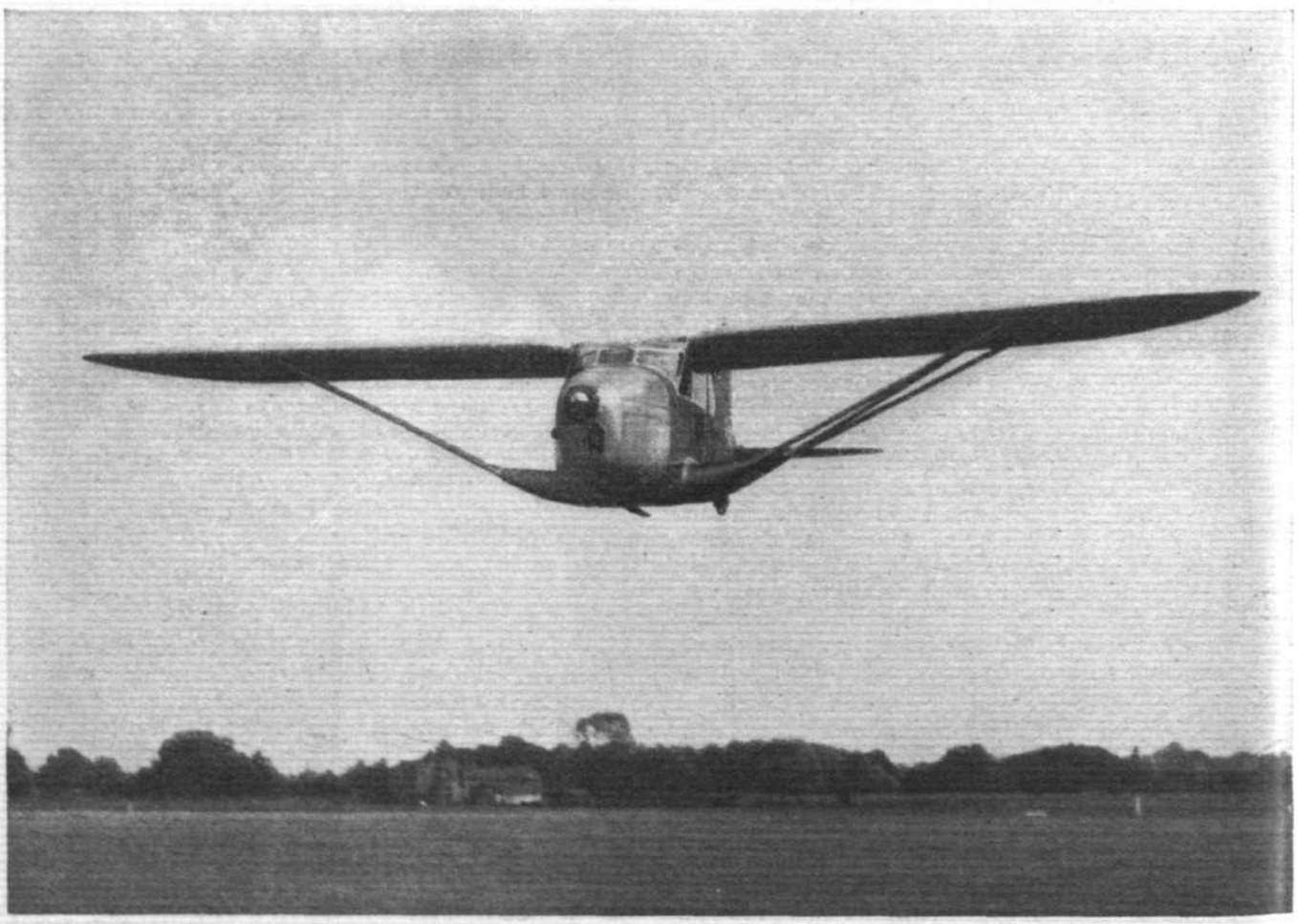
Newspapers in Sydney and Melbourne have been hinting at further increases to be undertaken in the not distant future. Not long ago Air Vice-Marshal Williams, Chief of the Australian Air Staff, visited Sydney, and inspected the units at Richmond and the new Demons. While there he mentioned a proposal to equip one of the new squadrons, or perhaps a flight of one of them, with new twin-engined landplanes of high performance. This may be taken to refer to the Avro Anson, which has recently been adopted by the R.A.F. as the equipment for the new class of General Reconnaissance squadrons. It is natural that in such a matter the R.A.A.F. should follow the lead of the R.A.F., as it is obviously desirable that the equipment of the two forces should be homogeneous. Australia, however, may compliment herself on the fact that in the case of the Seagull V (or Walrus, as it is called in the Fleet Air Arm), the R.A.F. has followed the lead of the R.A.A.F.

Labour Party Futilities

TALK of disarmament at the present moment seems like reading a chapter of very ancient history, yet the annual report of the National Executive of the Labour Party is very largely concerned with indignant wails because the British Government did not succeed in bringing about universal disarmament. The report even goes to the length of saying, "Because this country as a member of the League and a signatory of the Pact of Paris has renounced war as an instrument of national policy, and undertaken certain duties in connection with the restoration and preservation of peace, the citizens of this country are no longer bound blindly to obey the Government if it summons them to war." What, we cannot help speculating, would be the attitude of the Labour Party if the citizens of this country declined to obey a Labour Government? A summons to rebellion by a party which may itself be some day in office is a very dangerous weapon to employ.

For the rest, it is inconceivable that any British Government could have made more earnest and repeated attempts to limit, if not to abolish, armaments than the National Government has done.

Unilateral disarmament, especially in regard to the Air Force, was carried out beyond the safety limit by successive Conservative and Labour Governments, and the National Government followed the same policy until it became manifestly impossible to follow it any longer. Now we are busily engaged in trying to make up for some of the lost time, and are increasing our Air Force up to a point which is not yet in proportion to our needs and our position as a great Power, but still is not so far below that standard as to make us a negligible quantity in the councils of the League of Nations. The firm attitude of Britain at Geneva in dealing with the dangerous dispute between Italy and Abyssinia has impressed the world. If war is still averted, the main credit for preserving peace will certainly be due to Britain. Her strength is recognised on all sides, as is her overmastering desire for peace in the world. That would not be so if Britain were still unarmed.



LOW DRAG: Here is the first British strutted monoplane to have a retractable undercarriage. The machine is the Heston Aircraft Company's Phœnix, and the feature, with the careful cowling of the Gipsy Six engine, gives a very "clean" appearance. Other photographs appear on pages 318 and 319. (*Flight* photograph.)

The Outlook

A Running Commentary on Air Topics

Passenger Formations

'LIGHT has always felt that, however good the safety record of the concerns involved, formation flying by passenger machines subjects the trusting passengers in unreasonable risk.

. team of fine pilots may, for many years, continue fly daily in safe formation with varied types of :hine, but sooner or later a sudden engine failure or an or of judgment may cause two machines to touch h catastrophic results. Service pilots fly in formation s a necessary part of their training—with parachutes, they have, consequently, a reasonable chance of ıping the consequences of such a mishap.

'he general public is accustomed to the appalling death- which is the payment for the restricted freedom of road, but in the air one fatal accident still undoes good work of millions of miles of safe flying.

uch is the flexibility of human sentiment. Millions r die in indecisive wars and thousands in compara- ly useless private travel, but the people still cry out h horror when one air passenger loses his or her life in ying accident. Air travel, in fact, must be made en- ly safe before it can afford to be unsafe.

New R.A.F. Squadrons

'IVE new heavy bomber squadrons are to be formed by the first week of October, as is notified on our Royal Air Force page. It would be more correct to that they will be re-formed, as the numbers allotted to m, 38, 97, 102, 214 and 215, are all numbers of adrons which took part in the war, and the squadrons v to come into existence succeed to the records and litions of those old fighting units.

ıs the number of squadrons increases, the Air Ministry bliged to play a game of musical chairs with the exist- aerodromes. At the moment Upper Heyford is a nogenous station with three Hart squadrons, Nos. 18, and 57. This homogeniety is to be broken, for No. 18 ·. is to be moved to Eircham Newton, at present the ne of two Gordon squadrons, Nos. 35 and 207. Its ce at Upper Heyford will be taken by two heavy bomber adrons, No. 58 from Worthy Down and No. 215 which ıow to be formed. Upper Heyford will thus have two adrons of light bombers and two of heavy bombers, ich would not seem an ideal composition. The Western :a ought properly to administer all heavy bomber adrons and their stations, while the Central Area is ended to deal with all the light bombers. A proper ıngement will only be possible when more new stations ome ready for occupation.

Fitting the "Crime"

'OW that air transport has become a necessary and final part of the world's communication pattern, commercial pilots are, for the most part, treating ir careers with the seriousness that they should. Very of them either dare or care to contravene the safety ulations or to ignore any instructions from the control cers at the terminal airports.

Nevertheless, there are exceptions to every rule, and asionally one hears of pilots who either neglect to reply requests for information about their height and position who even transmit false positions so that they may be given earlier permission to land, in Q.B.I. conditions, while other pilots must take their turn.

With the increasing pressure on both the air routes and the ether—if one may use such a discarded invention—these pilots are likely to cause not only further congestion but even danger, and an "example" will eventually have to be made of any offenders.

The difficulty is to know how they shall be punished adequately and yet in such a way that their careers are not affected. It seems that a threat of short period licence suspension for serious breaches of the written and unwritten laws might bring them to heel. A week or month on the ground would be a serious matter for a pilot drawing flying pay, and, with the present shortage of good transport pilots, there would be little or no chance that he would actually lose his job during this period. An occasional injustice would be a small price to pay for absolute safety and regularity on the air routes.

With a Difference

A DIARIST in a London evening paper last week was disgruntled. He did not see anything remarkable in the fact that the King's Cup Race had been won at a speed of 176 m.p.h.; Sir Malcolm Campbell, he commented, had achieved over 300 m.p.h. in a land vehicle, and 176 m.p.h. from an aeroplane was not good enough in this year of grace.

Some of the very obvious facts which he had overlooked were that (a) whereas Sir Malcolm's 300 m.p.h. was achieved over a measured kilometre in a straight eleven-mile dash, Tommy Rose's 176 m.p.h. was over a distance of 350 miles round a triangular course, and in a machine which had raced for 953 miles on the previous day; (b) that Flt. Lt. Rose's engine developed 200 h.p. and Sir Malcolm's 2,350; (c) that the m.p.g. of the aeroplane was round about three times that of the car; (d) that the cost of building the aeroplane, a standard article, was probably one-twentieth that of the car; and (e) that whereas the car record was achieved, with all due respects to *Bluebird*, in comparative discomfort and danger, the Falcon pilot sat in a four-seater cabin as comfortable as a modern saloon car, and was accompanied by a passenger.

Let it not be thought, by the way, that any of these observations are intended to belittle the magnificent achievement of Sir Malcolm Campbell and his Schneider-type Rolls-Royce engine.

The Time Factor

THOSE who, while discussing the merits of using London's alternative airports for bad weather conditions, depress themselves with the thought that the surface travelling time will be lengthened sometimes forget one important point.

When Q.B.I. is in force at Croydon, for instance, half a dozen machines are often following each other quite closely, and, as each must be allowed about a quarter of an hour for an approach and landing, the fifth or sixth machine may need to fly around for an hour or more while awaiting the all-clear signal. Even if the passengers are on the road or rail for a longer period on the way in from the alternative airport they should still be in London well before the passengers from a machine which has been waiting its turn outside the controlled area.

AROUND the HOUSES

The Fourth Race for the Folkestone Aero Trophy Won by L. Lipton (Gipsy III Moth) at 112 m.p.h. in Very Rough Conditions : Capt. E. W. Percival Makes Best Time

The winner of the Trophy—L. Lipton (D.H. Moth).

Second—Flt. Lt. J. B. Wilson (B.A. Eagle).

Third—Capt. E. W. Percival (Mew Gull).

ONLY the nineteen starters in the heats of the Folkestone Trophy race know just how rough were the flying conditions last Saturday. Other people flew on their lawful occasions at a respectable and at, possibly, a bump-free altitude. The Met. office gave the wind speed as 36 m.p.h. and the only soft areas below a thousand feet were to be found on that part of the course which passed over the sea between the Capel le Ferne airship shed, the Folkestone harbour light, and the Hythe lifeboat station. Even that was not free from spar-splitting undulations.

This year the race was flown over three laps of the original Folkestone course, which is quite the most sporting and interesting of circuits, from Lympne inland behind Folkestone and past Hawkinge to the airship shed, down in a prolonged dive over the cliffs to the harbour, along the sea front and back to Lympne, where the turning point consisted of the conventional white cross. The Fathers of All the Bumps were to be found between the coast and the home base. The wind was blowing from the W.S.W., so that most competitors flew the first leg at about a thousand feet, beat along the sea front as close to the rolling waves as they dared, and then climbed up the steep hill to the Lympne turning point.

Bringing in Lipton's Moth, which averaged 112 m.p.h. (*Flight* photographs).

It was significant that, as the wind dropped slightly during the afternoon, the speeds went up by several miles an hour in the final, and the fastest machines lost some of the advantage which they held in the initial heats. However, the work of Messrs. Dancy and Rowarth was, as usual, almost above reproach, and nothing more exciting than the finish of the first heat could possibly be imagined.

In this, Leslie Cliff, flying Mr. Barr's old Salmson Klemm, was the limit man, but, in the conditions, which must have been really appalling for him and for Mrs. Barr, who travelled as passenger, he held the lead for only one lap while the faster men crowded up, their positions unchanged. At the end of the second lap Lord Kildare (Spartan Arrow) was leading, with Adam, flying the Moth Major which will later be used by the C.P.F.C. for training, and Lipton (Gipsy III Moth) rapidly overhauling him. Tweddle (Genet Avian) had already overtaken Lowe (Pobjoy Swift), with Henshaw (Hermes III

A winning group talk it over : Messrs. Lipton, Provost (fire-eating), Percival (pointing the moral), and Hansez. (*Flight* photograph).

RESULTS

		Actual Speed. m.p.h.
	Heat 1.	
1.	A. H. Cook (Miles Hawk Major)	150.00
2.	G. Hansez (Caudron Simoun)	169.50
3.	C. S. Napier (Percival Gull)	135.25
4.	A. H. Tweddle (Avro Avian)	117.50
	L. Lipton (D.H. Moth)	107.75
6.	A. Henshaw (Arrow Active)	122.50
	Heat 2.	
1.	E. W. Percival (Mew Gull)	196.00
2.	K. Waller (Percival Gull)	158.25
3.	J. B. Wilson (B.A. Eagle)	134.00
4.	Lord Crichton Stuart (Hendy Hobo) ...	120.50
5.	K. G. Seth-Smith (Jubilee Monospar) ...	119.50
6.	K. K. Brown (D.H. Leopard)	120.00
	Final.	
1.	L. Lipton (D.H. Moth)	112.00
2.	J. B. Wilson (B.A. Eagle)	139.75
3.	E. W. Percival (Mew Gull)	198.50
4.	A. H. Cook (Miles Hawk Major)	151.50
5.	K. Waller (Percival Gull)	162.00
6.	G. Hansez (Caudron Simoun)	171.00
7.	Lord Crichton Stuart (Hendy Hobo) ...	123.50
8.	A. H. Tweddle (Avro Avian)	119.25
9.	K. G. Seth-Smith (Jubilee Monospar) ...	122.50
10.	C. S. Napier (Percival Gull)	133.50
11.	K. K. Brown (D.H. Leopard)	123.00

rrow Active), sixth, and the Klemm now seventh. It seemed ɔsurd to imagine that M. Hansez, with his very fast Caudron moun, could possibly bridge the gap from the back mark. However, while the continually increasing number of specta-rs debated the point, a tightly grouped bunch of machines ıpeared over the trees. A. H. Cook (Hawk Trainer) was just the lead, with Napier's Gull and the Simoun fighting it out. ntil the result was announced nobody was quite certain ıether Hansez had overtaken Napier on the post, and Lipton ıd Tweddle actually tied for fourth place, with Henshaw just ging into the final. Pilots of machines with low wing load-g had the greatest difficulty in making contact with the earth.

The second heat and the final were followed by *Flight* from a grandstand—the front seat of the Jubilee Monospar flown, with five passengers, by K. G. Seth-Smith, the General Aircraft test pilot. Lord Crichton Stuart, flying his Hendy Hobo, was given just thirteen seconds start by the Monospar, and the Hobo remained, a barely distinguishable but significantly unchanging silhouette in front, for the three laps. Valance's Cirrus Moth, Tollemache's Gipsy Moth, and Winn's Spartan (belonging to the Hampshire Club), the limit machines, came into sight on the second lap, and were firmly overhauled on the last lap.

Capt. Percival's white Mew Gull left the starting line as the Monospar entered the home turn after the first lap and streaked by, on its way after the field, very soon after. 210 m.p.h. is impressive even from a 135 m.p.h. grandstand. The Hobo remained ahead, Flt. Lt. Wilson's Eagle moved slowly by on the penultimate leg of the last lap, Ken. Waller's powder blue Gull hurried by soon after and, finally, the Mew Gull passed again shortly before the Hythe turn. Capt. Percival actually overhauled the rest of the field in the remaining few miles and won at an average of 196 m.p.h. A fine and well-deserved win. If the wind had increased rather than decreased in force he might even have managed to annex the major trophy in addition to that presented by Mr. and Mrs. Eric Davis for the fastest time of the day. Waller's Gull, Wilson's Eagle, Lord Crichton Stuart's Hobo, the Monospar and K. K. Brown's Leopard followed into the final.

THE PRIZE-WINNERS

FOLKESTONE AERO TROPHY (presented by the late Mr. Walter Bentley) AND £50 to Mr. L. Lipton.

MEDAL AND £25 (presented by the Cinque Ports Club) to Flt. Lt. J. B. Wilson.

MEDAL AND £10 (presented by Mr. Noel Coward) to Capt. E. W. Percival.

CUP (presented by Mr. and Mrs. W. E. Davis) to Capt. E. W. Percival.

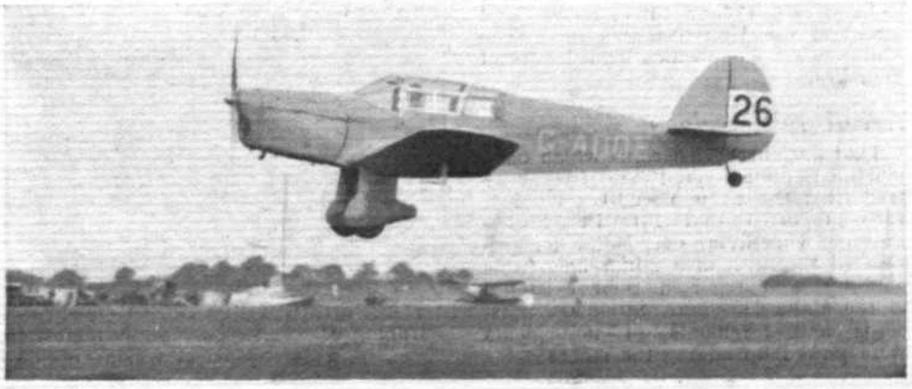
A Private Argument

While during this final the spectators were exciting themselves with the changing positions of the leaders, the passengers in the Monospar were enjoying their own private battle with Henshaw's Active, which started a few seconds later. It was amazing that two such different machines should have such an identical performance. The Jubilee was only, perhaps, a shade faster on the straight, while the Active naturally gained on each turn. Along the sea-front the Active dodged the waves, while Henshaw flew just below on the right and left, or even out of sight beneath the Monospar until nearly the end of the second lap, when he zoomed out of the fight with falling engine revolutions.

Once again Wilson's Eagle, Waller's Gull, and Percival's Mew Gull passed the Monospar during the "sea crossing," and A. H. Cook's Hawk Major was on its way to fourth place. Just beyond the Hythe turn the Simoun passed overhead, but Hansez could hardly hope for a place. Lipton had held his lead throughout, though the second man away, Tweddle, was overtaken by six competitors. Another two miles would have seen a finish almost directly in the "maximum speed" order—which is certainly perfect handicapping in this imperfect world.

The trophies and medals for second and third places were presented by the Mayor of Folkestone at the Leas Cliff Hall early in the evening.

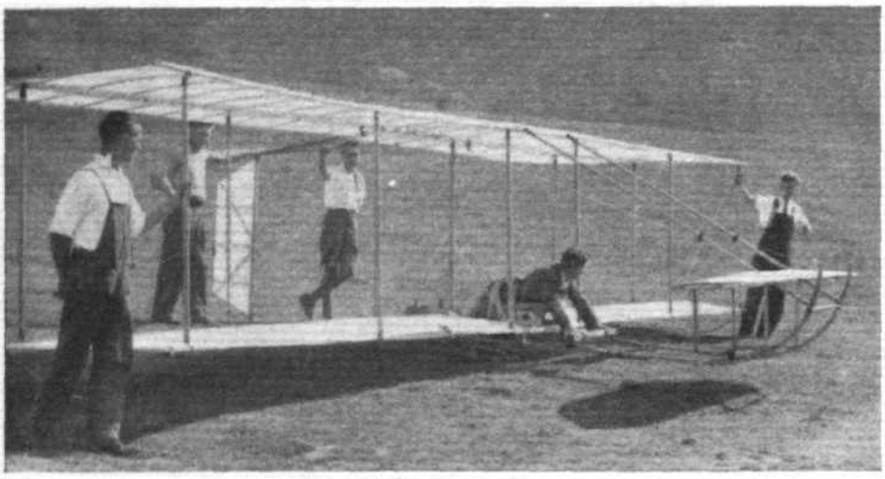
(Above)
The Jubilee Monospar crosses the finishing line after averaging 122.5 m.p.h. in the hands of K. G. Seth-Smith.



(Right)
C. S. Napier takes off with his Percival Gull, Cirrus Major which averaged 133.5 m.p.h. in the final.
(*Flight* photographs).

THE FOUR WINDS

ITEMS OF INTEREST FROM ALL QUARTERS



THE SHAPE OF THINGS GONE BY: A faithful copy of the Wright biplane glider of 1902 has been made by Zander and Weyl, of Dunstable, for use in the film *Conquest of the Air*. Mr. A. R. Weyl is here seen—we almost said "in the cockpit"—just prior to a launching. Some details appear on page 310.

A Feminine Fight

Miss Laura Ingalls has flown (supposedly in her Lockheed Orion) from Los Angeles to New York in 13 hr. 34 min., thus beating easily Miss Amelia Earhart's time of 17 hr. 7 min.

Flying Feathers

While surveying the west coast of Scotland and the Orkneys in search of bases for the Transatlantic air service, a Saro Cloud hit a seagull, which smashed an airscrew and necessitated a forced landing. The bird has not since been seen.

Another Cape Aspirant

Mr. David Llewellyn, flying instructor at Hanworth, is shortly to make an attempt on the Cape Town record. He will be accompanied, it is reported, by Mrs. Jill Wyndham, one of his former pupils. The flight is being sponsored by Mr. John Mercer.

A Thirteen-balloon Gordon Bennett

Thirteen balloons rose from the Warsaw aerodrome at five-minute intervals last Sunday to start the Gordon Bennett Trophy race. Belgium had two representatives, France two, Germany three, Holland one, Poland three, Switzerland one, and the United States one. The winner was the one which landed farthest from Warsaw.

Aerial Archaeology

That ancient buried ruins which have remained undiscovered are frequently seen from the air is a well-known fact. It is reported that Flt. Lt. Forbes Bentley, while flying over Malta, has discovered the ruins of a minor megalithic building, and reported their existence to the Malta Museum. Stone-age potsherds and fragments of implements were picked up among the stones.

A Second "Pou" Fatality

M. Henri Chapelet, an instructor to the Provençal Flying Club, was killed at Marseilles last week when his "Pou" crashed just prior to a landing.

One Thousand Pretty Targets

Over 1,000 men took part in a mass parachute "raid" during the Red army manœuvres last week. They descended behind the "enemy" lines with light machine guns and all landed on one aerodrome.

The Fastest off Land

Reports from the U.S.A. state that Mr. Howard ("*Hells Angels*") Hughes, the millionaire film producer, has unofficially broken the landplane speed record, averaging 337 m.p.h. in both directions over a measured mile. He was using, presumably, the radial-engined monoplane illustrated in *Flight* last week.

Eyeing the Eidelweiss

On his return trip from Italy to France, Capt. Thoret used only 1½ gallons of petrol in his French-built Drone during the crossing of the Alps. He reached 10,000 ft. while crossing Mont Cenis and averaged 56 m.p.h. According to one report the machine dropped on to a steel transporter cable spanning a deep valley and slid down it until its gliding angle became less than the slope of the cable!

And This in 1935!

The Welsh Nationalist party executive has protested against the proposed aerodrome at Porth Neigwl as "endangering the lives of its inhabitants."

Twenty-five Years Ago

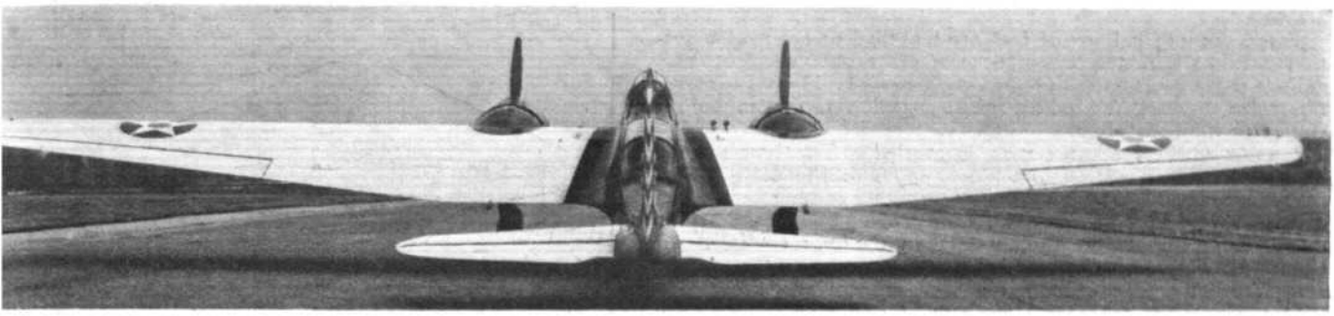
(From "Flight" of September 17, 1910.)

"Mr. A. W. Gamage has invented a 'non-concussion' flying helmet for which he claims great merits in protecting from danger aviators who may have upsets when flying. In our photograph Mr. Gamage himself is seen wearing one of these headgear."

STEEPENING THE GLIDE: Electrically operated flaps, placed well inside the trailing edge, extend outwards almost to the wing tips in the Luscombe Phantom, a description of which appears on p. 307. (*Flight* photograph.)

AN AMERICAN TRIO

eresting New Types : Martin Bomber, Northrop Fighter and Vought Scout



This stern view of the Martin B-10 reveals its remarkably fine line.

THE MARTIN B-10

OR many months past the Martin B-10 twin-engined bomber has been a standard type in the U.S. Army Air Corps, and detailed information has been withheld at the request of that force. Now that improved ions of the machine are being put into service, how-, it is permissible to give particulars of the earlier , which automatically becomes eligible for export.

uminium alloy sheet (24 ST), protected by anodising and ting, is the basic structural material. Fabric, however, is as a covering for the trailing edge of the main plane and on ilerons, rudder and elevators.

oval cross-section, the fuselage is in three portions: the forward of the front spar; the centre portion, built in-l with the centre section of the wing and housing the bomb and the tail section. These three are bolted together, all are of true monocoque construction.

ngitudinal stresses are taken entirely by the skin cover-shape being maintained by bulkheads of light sheet-metal intermediate former rings of duralumin tube. The side ng is of smooth sheeting, unlike the covering of the top bottom sections, which is corrugated. This latter feature, entally, is prominent in the big Martin Pan-American g boat.

ke the fuselage, the cantilever wing is built in three por-—a centre section, parallel in chord and two tapering panels. There are two spars in the form of deep plate rs with extruded angle flanges and solid sheet webs with ble stiffening.

e formers for the leading edge are cantilevered out from ront spar, and the trailing-edge frame from the rear spar. upper covering between the two spars is of a composite re, consisting of an inner corrugated element covered by ed-on flat skin.

eel tubing is used for the engine mountings, being bolted e front spar of the centre section. The engines are two ght Cyclones of the SGR.-1820-F3S type, giving 750 h.p. 950 r.p.m. at 5,400ft. Their compression ratio is 6.4 : 1, supercharger drive 8.31 : 1, and airscrew gear ratio 11 : 16. The airscrews are three-bladed Hamiltons, 11ft. 3in. in diameter.

Each unit of the retractable undercarriage hinges at a point below the front centre section spar in line with the engine mounting. The front strut is of welded sheet-steel of the "half-fork" cantilever variety with a single oleo-pneumatic shock absorber unit. A single "half-fork" tubular steel strut hinged to the axle and running to the rear spar along the centre line of the nacelle braces it fore and aft. At its upper end this strut is pinned to a trolley-like fitting running fore and aft on a track as the gear is raised or lowered. When the gear is raised this trolley moves to the rear of an extension of the track slightly behind the trailing edge of the wing, and when the wheels are

MARTIN B-10

TWIN-ENGINED BOMBER
TWO WRIGHT CYCLONE SGR1820-F3S.
750 H.P. at 5,400 FT.

Dimensions and Weights.

SPAN	70ft. 6in.
LENGTH	44ft. 8 11/16 in.
WING AREA	678 sq. ft.
WING LOADING (NORMAL)	20.93 lb./sq. ft.
WING LOADING (MAXIMUM)	23.09 lb./sq. ft.
POWER LOADING (NORMAL)	9.46 lb./h.p.
POWER LOADING (OVERLOAD)	10.43 lb./h.p.
WEIGHT EMPTY	8,996 lb.
GROSS WEIGHT (NORMAL)	14,192 lb.
GROSS WEIGHT (OVERLOAD)	15,652 lb.

Performance.

MAXIMUM SPEED AT SEA LEVEL	196 m.p.h.
MAXIMUM SPEED AT 6,500FT.	215 m.p.h.
MAXIMUM SPEED AT 10,000FT.	213 m.p.h.
SERVICE CEILING (BOTH ENGINES)	25,000ft.
SERVICE CEILING (ONE ENGINE)	10,600ft.
CLIMB TO 10,000FT.	7 min.
MAXIMUM RANGE (15,000FT. AND 170 M.P.H.)	1,400 miles.
MAXIMUM RANGE (10,000FT. AND 170 M.P.H.)	1,300 miles.
MAXIMUM RANGE (10,000FT. AND 200 M.P.H.)	1,000 miles.
NORMAL RANGE (10,000FT. AND 170 M.P.H.)	700 miles approx.

The B-10 has lately been mounted on a pair of Edo floats with a view to attacking certain seaplane records.

down the sliding end of the trolley is firmly locked in position at a point just under the rear spar. The actual raising and lowering is effected through cables wound round an electrically operated drum which may, in an emergency, be turned by hand. The main wheels are of "streamlined" type, 45in. in diameter, being mounted on tapered roller bearings. Individually operated hydraulic brakes and a swivelling tail wheel are fitted.

Tanks for 113 gallons of fuel are installed in the centre section outboard of the fuselage; the oil tanks, each of 31.5 gallons capacity, are mounted in each nacelle. Should extreme range be required, an additional 250-gallon tank can be installed in the bomb bay.

A crew of four or five men is carried. The bomb-aimer (who is provided with a machine gun) and the pilot are in the nose section. Space is provided amidships for the wireless operator, who acts also as navigator. Machine guns are provided above and below the fuselage in the rear cockpit. In this position there is a set of auxiliary controls. A fifth man, who may be the flight commander, can be stationed amidships with the wireless operator. Both front and rear cockpits are covered with sliding transparent enclosures, and the bomber is protected from the airstream by a "birdcage" turret.

The bomb load is normally carried in the centre portion of the fuselage, a pair of "clam shell" doors in the bottom of the bomb bay being opened when the projectiles are to be released. When the bomb bay is filled with auxiliary tanks the bombs are carried in external racks.

NORTHROP XFT-1

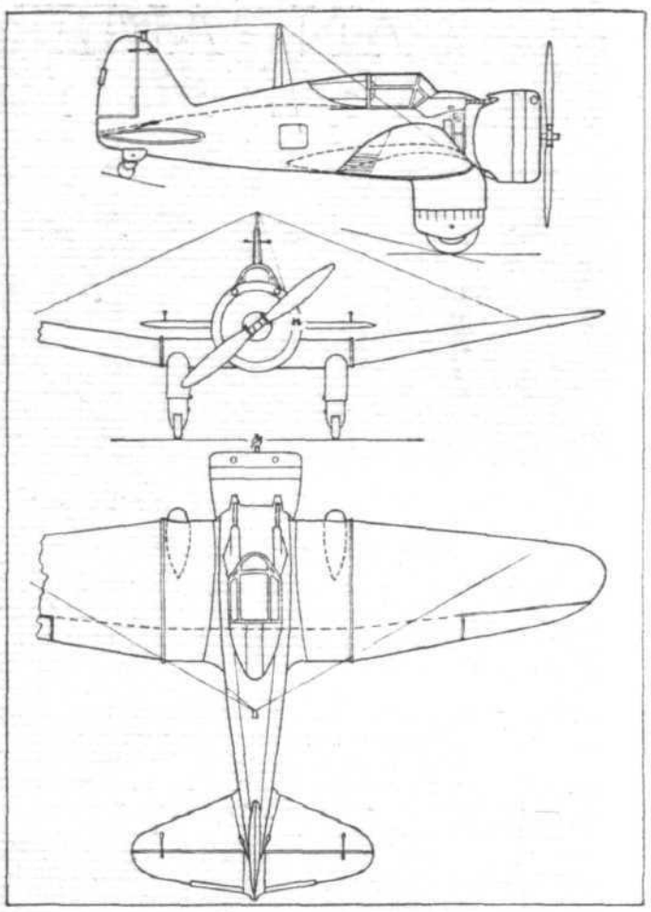
LATELY the Northrop Corporation, controlled by the Douglas Aircraft Co., which is, in turn, a subsidiary of Northwest Aviation, has turned its hand to the manufacture of military aeroplanes. An "attack" version of its Gamma monoplane has been adopted by the U.S. Army Air Corps (the Northrop bomber purchased by the Air Ministry is basically similar) and it has a number of experimental Army and Navy types on test. Outstanding among these is the Navy fighter known as the XFT-1.

The XFT-1 is a monoplane (unusual for a Fleet machine) of all metal construction. Over a fuselage framework of pressed duralumin formers stringers of H section have been riveted.

A fourteen-cylinder two-row Wright Whirlwind of approximately 700 h.p. is bolted on a mounting of steel tubes. It is provided with a full N.A.C.A. cowling constructed in three major sections.

Of typical Northrop construction, the wing is in three sections. The spars and ribs are of duralumin and are interlaced to take unusually great stresses caused by sudden pull-outs from steep dives. The two portions of the fixed "trousered" undercarriage are attached to the centre section of the wing; one oleo strut is provided for each unit. To the rear portion of the centre section is attached a flap which, it is said, functions automatically when the stalling point is reached. Frise ailerons controlled by push-pull rods are fitted and from their inner ends to the centre section there are two additional flaps.

A short span (29ft. 8in.) is a notable feature of the machine. The length is 19ft. 11in. and the height 9ft. 9in. It is said that at 75 per cent. full power the XFT-1 cruises at 245 m.p.h., the full throttle speed being 272 m.p.h.



The short span of the XFT-1 is a notable feature.

VOUGHT SBU-1

EIGHTY-FOUR new scout-bomber biplanes are being built for the U.S. Navy by the Chance Vought Company, and the first machine of the batch has recently been tested. The scout-bomber type is intended both for bombing and long-range scouting activities which hitherto have been performed in the U.S. Navy by two distinct types of aircraft.

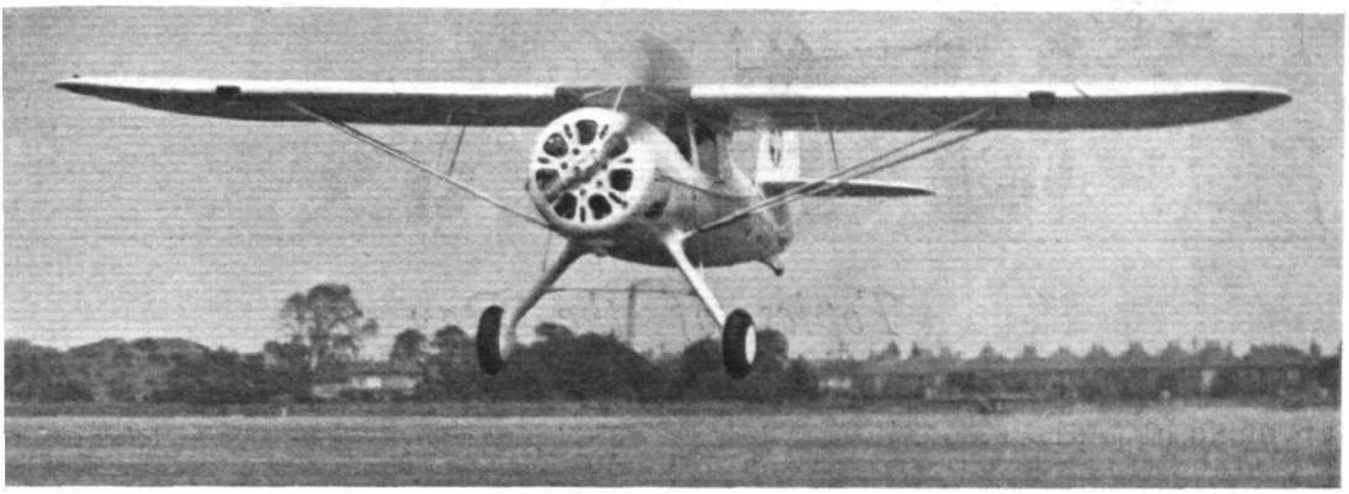
Designated the SBU-1, the new machine represents a distinct departure from the well-known Vought Corsair type which, for many years, has been extensively used on the aircraft carriers, battleships and cruisers of the U.S. Fleet. Its structure is of metal with fabric covering, except for the fixed tail surfaces which are metal covered. An outstanding feature is the N.A.C.A. cowling which embodies adjustable flaps.

Split flaps are fitted to the lower wings, and the engine, a geared Pratt and Whitney Twin Wasp Junior developing 700 h.p. at altitude, drives a Hamilton controllable pitch airscrew.

The flaps round the N.A.C.A. cowling of the Vought are an innovation. In the right-hand view the pilot's "conservatory" can be seen.

AN ALL-METAL LIGHT MONOPLANE

Details of the American Luscombe Phantom Seen at Heston : Side-by-Side Seating and Interesting Equipment



The Luscombe Phantom at Heston. Note the undercarriage bracing and the tunnel cowling. A photograph of the flaps appears on page 304. (*Flight* Photograph.)

AT Heston last week operators and pilots were waxing lyrical or critical concerning an all-white high-wing monoplane with Swiss registration markings which had been brought in by M. Tschudi. This machine, which distinctively Monocoupe lines, was interesting them not so ch because of its all-metal construction but because of its isually adequate standard equipment and of its very com- ing interior upholstery.

uch things as navigation lights and landing lights had been igned as part of the machine, and the dashboard in front of side-by-side seating included the usual blind flying equip- it as well as a rate of climb indicator and an interesting io set which could be tuned in to either broadcasts, weather orts or radio beacons—in America. The upholstery and rnal fittings were well up to the standard of those in a d car, and the view from either of the seats was extremely d over the short cowled radial engine. The roof of the in was almost entirely transparent, and even the leading es of the wing had been faired into the screen with mica ions.

his machine, the Phantom, is a product of the Luscombe plane Development Corp., of Trenton, N.J. It is of metal struction and was designed, in fact, by Mr. Don Luscombe,) was responsible for the Monocoupe series.

Specialist Assembly

laving determined that the conventional method of aircraft struction was too costly, the Luscombe company decided restrict its activity to the assembly of parts manufactured specialist firms. The machine being of metal construction, as necessary only to have the dies manufactured and any nping concern could then stamp out the various parts. se stampings are delivered to the Luscombe factory, where are heat-treated before use.

f duralumin monococque construction, the fuselage has ngth characteristics which more than satisfy the require- its of the American Department of Commerce for aircraft a top speed in excess of 150 m.p.h. Metal spars and ribs also employed, eliminating all wood from the structure.

laps of high aspect ratio are provided across the greater ion of the wing span. To permit the full effectiveness he high aspect ailerons, these flaps are located well forward he latter surfaces, on the underside of the wing, where, it is ned, they have little or no detrimental effect on lateral rol. The flaps are operated by a small electric motor ch stops automatically when they have reached their maxi- n position. Their movement may, of course, be arrested ny point, and manual control is also provided. It is said the flaps—which keep the landing speed below the 45 .h. mark—may be operated when the machine is travelling terminal velocity dive. As well as the motor operating flaps and the landing lights mounted in the wings, a wire- less set, electric starter, navigation lights and an engine-driver generator are fitted as standard.

The undercarriage is of extraordinarily clean design, embody- ing wire-braced oleo struts having a deflection of 5½in. The combination of a leaf spring, supported by a vertical member with rubber discs carried in the fuselage, permits the use of a small rubber swivelling tail wheel which will neither "shimmy" nor puncture and has a low drag.

Petrol feed is by gravity and a sediment trap is carried at the lowest point in the circuit in addition to the usual filter.

Access to the roomy cabin is obtained through two large doors. Windows are provided in the top and rear sections, and the ventilating system has been designed to make possible the regulating of cabin temperature and to keep it free from engine fumes.

A Warner radial engine of 90, 125 or 145 h.p. is normally fitted. This is enclosed in a long-chord tunnel-type cowling which pro- vides forced and controllable cooling of all cylinders. With the 145 h.p. Super Scarab engine, the Phantom sells in America for 6,000 dollars (£1,200)—or for 3,500 dollars with the 90 h.p. Warner Junior.

LUSCOMBE PHANTOM

TWO-SEATER CABIN MONOPLANE

Warner Super Scarab—145 h.p.

SPAN...	31ft.
LENGTH	21ft. 6in.
WING AREA	132 sq. ft.
DISPOSABLE LOAD...	650 lb.
GROSS WEIGHT	1,950 lb.
MAXIMUM SPEED	168 m.p.h.
CRUISING SPEED	142 m.p.h.
LANDING SPEED	45 m.p.h.
RANGE AT CRUISING SPEED	560 miles

Indian Pilot's Cape Flight

NEWS has recently been received by the Cirrus-Hermes Engineering Co. from Mr. Man Mohan Singh that in try- ing to take off from a field near Luwingo, in Africa, he damaged both wings and the undercarriage of his machine—the original Percival Gull fitted with a Cirrus-Hermes IVA engine. The damage received by the engine was very slight.

Mr. Singh proposes to continue his flight to the Cape so that he may be the first Indian pilot to fly thence from England solo. The prize offer which was made some while ago by H.H. the Aga Khan has now lapsed.

Speaking to Mr. J. Gadd, of the Cirrus Hermes Co., from Broken Hill aerodrome recently, the pilot seemed quite cheerful. His machine has been taken to Broken Hill for repairs.

Private Flying

Topics of the Day

Crowded Aerodromes

DURING the past few weeks two comparatively inexperienced pilots have, in conversation, admitted their sublime ignorance of aerodrome air traffic rules—despite the fact that they had passed "A" licence *viva voce* examinations. One of them asked how, while waiting amidst a solid phalanx of diverse aeroplanes, he was to know when to start his take-off. Another explained that he had once taxied right out at one of the big airports before remembering that there was "some signal or other" which had to be given before the take-off.

At any large commercial airport with a control staff the pilot taxies out to the take-off position and there awaits a signal from the control tower or other edifice, this signal taking the form of a light from an Aldis lamp. This lamp can be focused extremely accurately, so that there is very little chance that one pilot will receive and act on a signal intended for another. The effect is similar to that obtained at school when someone skilfully focused a mirror on one in the strong sunlight, and is quite unmistakable.

It is, of course, difficult to act precisely according to the regulations at a normal aerodrome, but a pilot should, as far as possible, land always to the right of machines on the ground, and should take off while leaving the other machines on the left. In due course most aerodromes will probably be divided into zones for landings and departures. To the pilot approaching up wind the area on the right would then be reserved for landings, and where such a system is in force it would be indicated by a five-pointed white star in the centre of the particular aerodrome.

Fuel Calibration

ALTHOUGH most modern aeroplanes have accurate and minutely calibrated petrol gauges, a very large number of machines are flying, and will undoubtedly continue to fly, for many years with rough and ready float-type gauges. The owner of such a machine will find it worth while to make a diagram giving the number of gallons of petrol in the tank when the top of the float is in different positions.

If he runs the tank dry he can then put in four gallons, lift the tail of the machine into flying position and sketch the position of the float. Then, taking good care that the machine does not fall from its precarious tail-hoisted position, he can add another two and make a similar mark. He will then know exactly how much fuel he has in the tank when the float is nearing the bottom of the indicator, and can, if so disposed, continue to fill the tank and mark the diagram as each two-gallon tin is emptied. The initial four-gallon marking is, however, by far the most important.

An Important Point

THE gauge may usefully be calibrated before each addition with the tail down so that the pilot, before taking off, can see exactly how much fuel he has. It is very important to know, for instance, that when one can just see the top of the float there are x gallons in the tank, and this knowledge may one day save an unnecessary safety forced landing when there is actually more than sufficient fuel for the quarter of an hour or so required to reach a nearby aerodrome. Incidentally, for this and many other jobs in the hangar, a step-ladder some four feet high is a most useful adjunct. It enables the pilot to reach the valve rockers, the sparking plugs, the carburetter and the oil filler cap without performing balancing or stretching feats.

When the tail is propped up, by placing the steps at the recommended lifting point, it is possible to examine the tail skid spring and check wire, and to make any necessary inspections in comfort. The machine should either be held by someone else or lashed to the steps during the process as an accident would be costly.

Headwind Effects

MOST of us, at one time or another, have been asked that awkward question about the gentleman with homicidal tendencies who is trying to shoot the driver of a mile-a-minute express with a revolver that ejects a bullet at 60 m.p.h. A rather more involved and up-to-date problem concerns the two pilots flying respectively faster and slower machines on an out-and-home course with a strong and steady wind blowing. The problem is similar in the case of a triangular course.

At Lympne last Saturday a bunch of people were finding it very hard to believe that, under the circumstances, the wind would make any difference at all. A little thought will show that the slower machine is always at a disadvantage inasmuch as it is flying for a longer period against the wind. Imagine a 100 m.p.h. machine flying with and against a 20 m.p.h. wind for 100 miles in each direction. On the two courses its flying times will be 50 minutes and 75 minutes respectively. The total flying time of 125 minutes compares unfavourably with the theoretical still air time of two hours.

A 200 m.p.h. machine, on the other hand, would take 33.3 minutes on the up-wind flight and 27.3 minutes on the down-wind flight. The total of 60.6 minutes compares much more favourably with the theoretical time of an hour for the flight in still air conditions.

Hence, to bring the matter into the realm of practice, the fact that, as the wind dropped slightly for the final at Lympne, the slower machines made proportionately better speeds over the triangular course.

INDICATOR.

FROM the CLUBS

Events and Activity at the Clubs and Schools

ORKSHIRE

Ir. A. Barker, an Aviation Group member, has passed his "A" nce tests and Mr. C. Busfield, a pupil of the Air League's 'oung Pilots Fund," has gone solo. Dr. J. N. Hill has joined an associate member.

'lying on club machines last week totalled 31 hr. 5 min. and luded flights to Doncaster and Renfrew.

OLLERTON

I. Mignet visited Tollerton with his Pou on Friday, September 6, l gave a demonstration before a crowd of members and visitors. ee Pous, incidentally, are being built by club members.

'he flying time at Tollerton last week totalled 47½ hr. Four new ociate members have joined the Club and Messrs. Lucas, Nash, as Junior, Marshall, Miller and Copeland have become flying nbers.

NWORTH

ast week the Hanworth Air Park Flying Club moved over to new hangar which is about twice as big as the one previously upied. The South African cricket team visited Hanworth recently were conducted by Mr. Wood in a Monospar on flights over d's and the Oval.

he flying time for last week—during which Messrs. Ewen, Hoppe, den and Mellor became members—totalled 51 hr. 25 min.

EMING

axi trips were in great demand for the Doncaster races and on ry day of the meeting at least one machine was sent.

r. Gerald Armstrong, the well-known trainer, has passed his " licence tests, and will take delivery of a Hornet Moth very rtly. Mr. Weston Adamson, of North Allerton, took over his par-l Moth last Tuesday. The month's flying time to last week- was 54 hr. 35 min. Messrs. Rous, Lewthwait and Lawson have ime pupils.

NDON

he results of the competitions held last Saturday were: Forced lings: (1) Mr. M. J. Young, (2) Mrs. Crossley, and (3) Mr. D. J. cher. Aerobatics: (1) Mrs. Crossley, (2) Mr. R. L. Porteous, (3) Mr. G. Lyon.

essrs. J. A. Marks, A. R. Ward and W. B. Fenny completed r "A" licence tests and Mr. J. B. Beer and Miss P. Hollingte went solo. Flying time totalled 85 hr. 55 min.

ir Vice Marshal Joubert de la Ferté has recently joined the al Air Force Flying Club.

LIVERPOOL

During the fortnight ending September 12, the Liverpool and District Aero Club flew 116 hr. 20 min.

SOUTH COAST

Last week—the second of the club's existence—25 hr. flying was done. The lounge will be opened this week, the furniture being finished in red and black—which are the Brooklands colours.

The first solo to be recorded was that of Mr. E. Myers. Messrs. W. H. Wilson, R. Brown, C. C. Russell, E. Hughes and Miss Spiller have become members.

NORTHAMPTONSHIRE

A feature of this month will be the rally of the car section which is being held on September 28. There will be a "mystery" run ending at a "mystery" hotel, where competitors will spend the night. Facilities for dancing and floodlit bathing will be available. On the Sunday morning a handicap race will be held over a mile course in the hotel's private grounds. The rally is not limited to members of the Northamptonshire Aero Club and the entrance fee is 12s. 6d.

The contest for the Club Landing Competition Cup, which is held every three months, was won by Mr. David Lloyd, who, on both shots, finished up within one yard of the flags. The runner-up was Mr. P. H. Leyton, who, with only fourteen hours' total solo, averaged 11½ yards from the mark.

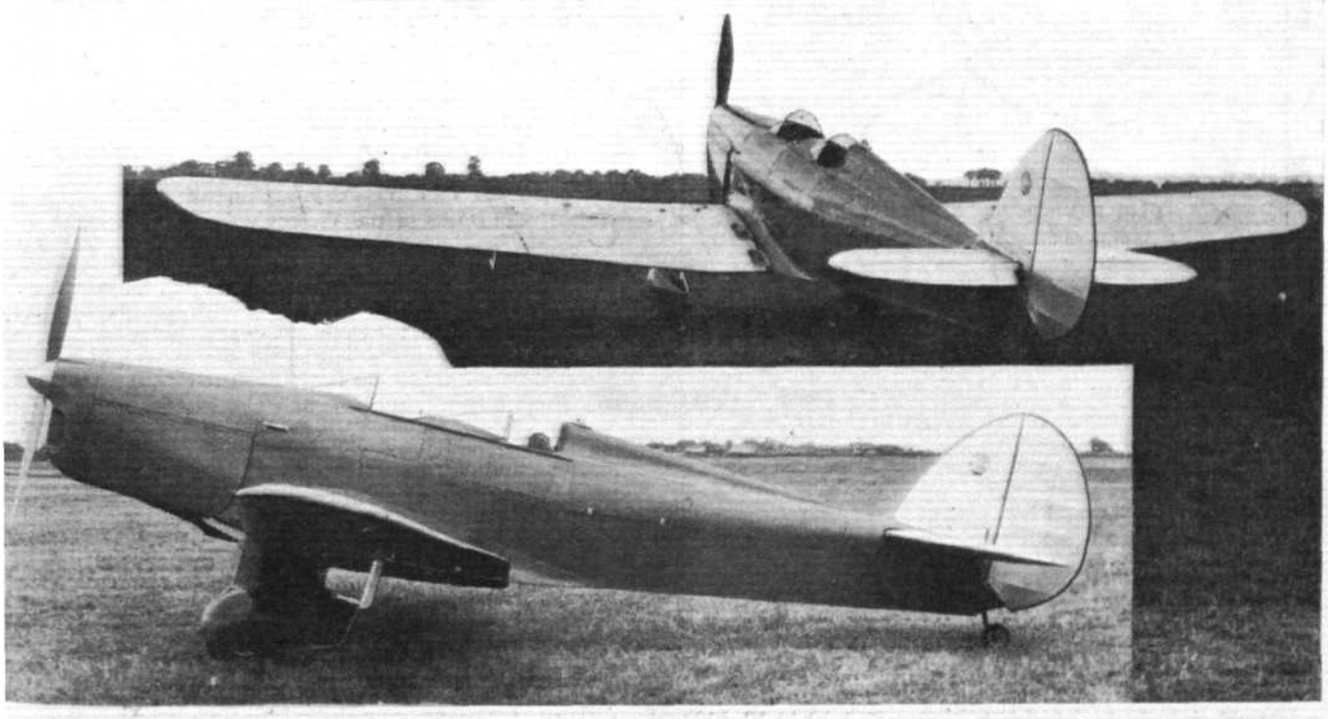
EDINBURGH

The Edinburgh Club has made remarkable progress since its inauguration this year at Macmerry aerodrome, East Lothian, and membership is steadily increasing. Four new members, in fact, joined last week, when, with two non-flying days, Club machines put in 23 hr. 35 min. A course of lectures on air pilotage, etc., has been arranged for the winter.

During the week-end a Saro Cloud, flying to Aberdeen to meet Lord Cowdray and a party, made use of the re-fuelling facilities.

With a few exceptions competitors in the King's Cup Race found the Macmerry turning point with wonderful accuracy. Distinguished visitors who witnessed the race included the Earl and Countess of Elgin, General Sir Ian Hamilton, Sir Thomas Whitson, Mr. T. M. Cooper, Solicitor-General, and Edinburgh Civic representatives.

After the last machine—Mr. Tweddle's Avian—had passed, Mr. George Reid, in a Club machine, entertained the assembly with aerobatics, which were followed by formation flying by a flight of Harts of No. 603 (City of Edinburgh) (Bomber) Squadron from Turnhouse.



N OPEN GULL. It will be agreed that this new open-cockpit two-seater Percival Gull is an extremely pretty aeroplane. uilt for the Maharajah of Jodhpur, it is fitted with a Gipsy Six engine, electric starting, dual control and special tankage arrangements which give it a range of 800 miles.

Private Flying

CASTLE BROMWICH

Mr. C. A. B. Baker has joined the Club, and Mr. T. Nicholson has gone solo. Last week's flying times were 21 hr. 40 min. dual and 21 hr. 20 min. solo.

REDHILL

The hours for the week ended September 13 totalled 67 hr. 40 min. at the Redhill Flying Club. C. G. K. Browne and J. Jeffs passed their "A" licence tests, and four new members joined the club.

NEWCASTLE-UPON-TYNE

First solo flights have been made by Dr. J. Neilan and Mr. S. W. Ogden. Miss J. P. Forster completed her "A" licence tests. Of the total flying time (43 hr. 25 min.) 19 hr. 55 min. was solo.

LEICESTERSHIRE

Mr. G. W. Clarke made his first solo recently. Flying time for the week ended September 7 was 24 hr. 25 min. There was night flying on August 31 and September 7, one first solo being made.

NORFOLK AND NORWICH

Last Tuesday saw the end of the second Public Schools Aviation Camp at Norwich. Of the twenty-one boys in the camp, only one failed to obtain his pilot's licence.

Mr. A. L. Flowerdew has become a pupil of the Norfolk and Norwich Club. The date of the annual ball, which will be held at the Samson and Hercules House, Norwich, is Friday, November 8.

CARDIFF

The annual London-Cardiff air race and dinner-dance will be held next Saturday. This year the race will be run from Heston to Cardiff, where the first machine is due about 2.30 p.m.

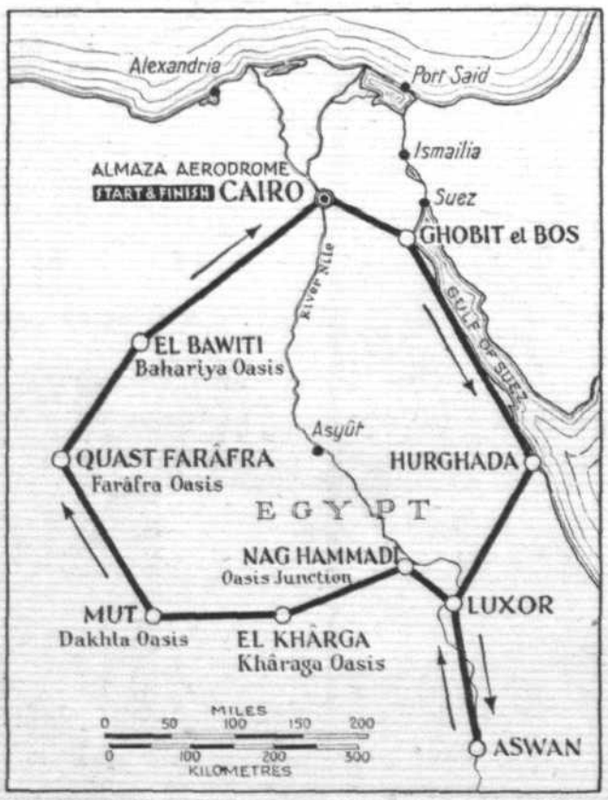
During the afternoon there will be a pylon race round the aerodrome for a cup presented by Lord Patrick Crichton-Stuart. The course for this race was suggested by Capt. Broad, who is entering both for the London-Cardiff race and for the pylon event.

Visiting pilots will be guests at a dinner-dance following.

AIR SERVICE TRAINING

During August the total flying time at A.S.T. was 1,321 hr. There are now twenty-seven *ab initio* pupils for the Royal Air Force, five being destined for the R.A.F. College.

The following licences and certificates were gained during the month: "A" licences—F/O. M. T. Maw, Sgt. D. C. Young, A. Lasnausky; instrument flying certificates—Messrs. Hall, Rees and Walker; instructor's certificates—Flt. Lt. G. Wood, R.A.F.O., and Mr. Babar Mirza. Mr. G. H. Godwin completed an Instructor's Blind Flying Course.



AROUND THE OASES. Egypt's Third International Flying Meeting is being held at Cairo from March 16 to 20, 1936. This is the course of the Circuit of the Oases. The formula to determine the winner will take into account speed, petrol consumption, range and general equipment.

BROOKLANDS

Six first solos were made last week by Verity, Martindale, Lavender, Truscott, Denny and Richards, the first three being sent off in one day by Mr. Rea. Mr. Prince completed his "B" licence tests and two new members joined the Brooklands Club. On the Sunday before last Club machines flew down to Brighton.

HERTS AND ESSEX

Messrs. P. T. Buckingham and V. A. Ercolani, who tied for first place in the competition for the Shelmerdine Challenge Bowl on September 1, "fought it out" on Sunday, September 8. Mr. Ercolani won by one point.

Messrs. S. Lipert, D. N. Bunsha, L. A. Phillips and Eugen Kohlar have joined the Club and are taking instruction. Mr. J. F. Millard has gone solo.

Hard tennis courts are to be provided by the Social Committee.

Flying time for the fortnight ending September 11 was 188 hr. 17 min., of which 75 hr. 5 min. was dual.

CINQUE PORTS

The Club has lately been participating in local festivities. The chief instructor, Mr. K. K. Brown, gave a display of bombing at the Hythe Venetian Fete, the target being a "submarine" proceeding up and down the Hythe canal. On each day of the past week members have been flying over the Hastings Carnival.

Miss Paul Baird has passed her "A" licence tests, and Mr. Jack Dunn, runner up in the world's amateur skating championship, has gone solo. There are several new members, including Miss Jeanne de Casalis and Mrs. Winifred Short.

The Duke of Kent and Sir Philip Sassoon visited the airport early in the week. Flying time for the past fortnight was 90 hr.

CAMBRIDGE

A record was made last Sunday when over 20 hr. flying was logged. Figures for this quarter show an increase of 100 per cent. on the flying hours of the same quarter last year. It is expected that it will be necessary for the Club to purchase another machine, bringing its instructional fleet up to five machines with three instructors.

Last week two air charter trips were made, and Mrs. Pirie went solo. The Cambridge University Flying Club has received considerable support and is making a good start. It is said that Lord Wakefield has assisted in the formation of the Club.

Seven members of the C.A.S.C. attended on Sunday, but bad weather prevented flying.

Testing a 1902 Wright

MR. ALFRED RICHARD WEYL, of Zander and Weyl Light Aircraft, has been "test-hopping" the 1902 model Wright biplane glider which his company had built for London Film Productions to use in the film *Conquest of the Air*. He reports that the controls work well, but that there is no "feel" in them.

The machine needs a fairly stiff wind without too many gusts—the Wright Brothers, of course, flew in steady coastal winds. It is possible to fly the glider only in a straight line owing to the inter-connection between the wing warping system and the rudder. The latter is not a control, but is used to counteract the yawing moment due to the wing warping. Wing tip skids have been fitted for protection during the trials and normal turnbuckles have been adopted.

Mr. Weyl finds that the original Wright machine must have been a sound engineering job, proving the practical knowledge and the technical capabilities of Wilbur and Orville Wright.

The Viceroy's Trophy Race

COMPETITORS in the Viceroy's Challenge Trophy air race, which will take place on February 14 and 15 next year, will have to fly approximately 1,500 miles, starting from Madras at 8 a.m. (Indian standard time) on the first day. The course will be finished at Delhi, with compulsory stops at Hyderabad, Bombay, Ahmedabad and Jodhpur.

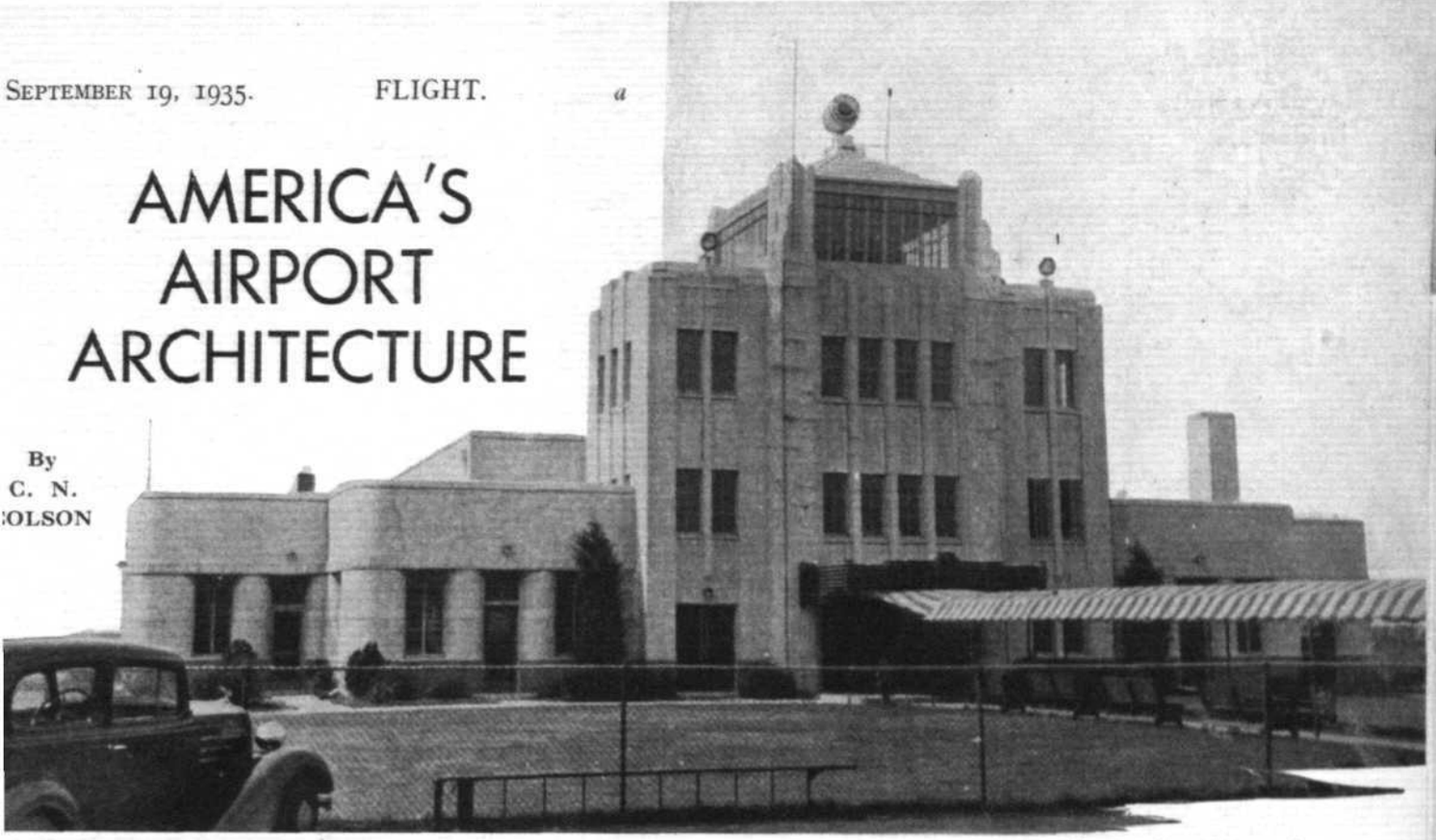
Pilots and passengers will spend the first night at Bombay, which they will reach *via* Hyderabad (Deccan). On the second day the pilots will land at Ahmedabad and Jodhpur on their way to Delhi. Handicap times will be worked out so that all machines should reach Bombay before 7 p.m. (I.S.T.) on the first day and reach Delhi before 7 p.m. on the next day.

At the compulsory stops machines will be flagged in as having arrived from the moment the pilot hands in his race card to the control official. Each pilot must then remain on the ground for a period of twenty minutes, during which time he may refuel and, if necessary, make minor adjustments to his aircraft. This will not be counted as flying time. At Bombay and Delhi, of course, a finishing line will be crossed. Landings between the controls will not disqualify the pilots, but the time will be counted as flying time.

Flt. Lt. G. L. Gandy, Deputy D.C.A., R. S. Lane, Chief Aircraft Inspector, and Flt. Lt. L. W. Cannon have been appointed official handicappers, the work being carried out in the usual way. Eighty miles an hour is the minimum handicapped speed, and the entrance fee for each machine is Rs.100.

AMERICA'S AIRPORT ARCHITECTURE

By C. N. OLSON



St. Louis, Missouri.

Widely Varied Climatic Conditions Responsible for Many Contrasting Styles of Building, Impressive and Otherwise

ENERALLY speaking, people do not realise the extent to which America is a conglomeration of countries rather an a homogeneous whole. The mate varies from the extremes of e north to the arid deserts and dust-orms of the south; from the verdant mperate belt to the tropics, where e traveller may find either luxuriant ests or, by contrast, barren rocks d sand.

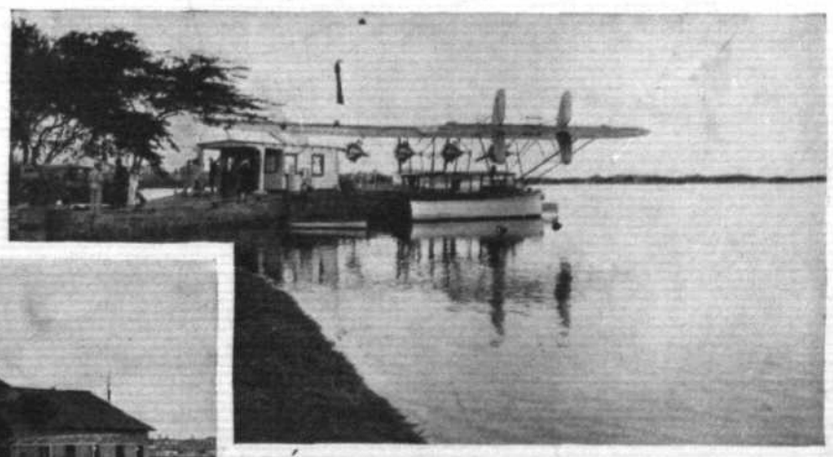
English people who have never been beyond the confines their own small island country can have little idea of e way in which these varied climatic conditions affect merican Architecture, both from the aspect of giving aximum comfort to those who use the building and of curing the greatest possible durability of construction face of the characteristic weather conditions which evail locally.

Probably in no particular class of building is this more ident than in the structures erected on airports. There e very few airport buildings more than a w years old, and architects have naturally llowed the most modern plans and em-died the latest ideas.

A study of airport buildings in America is, erefore, more interesting than in any other country, because somewhere in America can be found buildings which are eminently suitable for any particular climate in any other part of the world.

A few months ago I made a tour of quite a large number of American airports, but, although I traversed the country from north to south and east to west, so large is it that even then I saw no more than a very small portion. Nevertheless, I was able to gather a representative collection of photographs of airports, and from those which accompany this article the main classes of structure which one encounters on a tour of this nature will be readily understood.

We will start with Pan American, that vast organisation which serves America in the same manner as Imperial Airways serves the British Isles. Their lines run from Miami through the West Indies, right round South America and up through Central America to the U.S.A. itself.



Kingston, Jamaica.

n Juan, Porto Rico.

(Right) Nuevitas, Cuba.

Miami, Florida.

Strictly speaking, their airport buildings are not, except in a very few cases, on American soil, but they have almost all been born in American minds and can therefore find a place in this article.

Miami is the divisional headquarters of the Caribbean Division of Pan American. A New York office is maintained on a large scale, but from a practical point of view Miami can be looked upon as the hub of the whole system.

The station building there, at Dinner Key, is a model which is likely to remain a model for other stations for a very long time. It is so absolutely unique that it deserves a full description. The building is of the central kind, with a large hall from which radiate passages leading to four covered embarkation ways, connecting to the four piers and pontoons from which the flying boats leave and at which they arrive. The covered ways are on a lower level than the main central hall, and this difference is utilised so that incoming passengers can be led direct to the doctors and immigration authorities without having to pass through the main hall, where they might make contact with other people. This is done because the most serious view is taken of the risk of introducing yellow fever and other tropical diseases. Facing the main entrance to the main hall are baggage, customs and ticket offices. In the walls, either side, are the doors leading to the passages to the embarkation piers, and on either side of these doors are large boards which give the times of departure and the routes of the various services, as well as the number of the pier from which they leave.

Dominating the centre of the hall is an enormous globe, constantly revolving about an inclined axis and having the world's air routes marked upon its surface. The whole of the walls and ceiling of the hall are covered with paintings of aircraft representing some of their history—mostly in terms of Pan American's fleet—since the days of Leonardo da Vinci. The Pan American colours of blue and silver are used for all this decoration, which is undoubtedly very effective.

David, Panama.

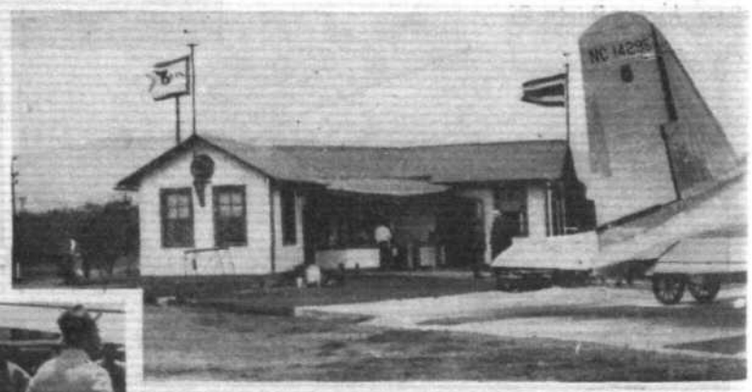
A large kitchen forms the upper floor on the left of the hall, while there is a restaurant at the back and a small one for buffet service to the right. Outside these three runs a large verandah from which visitors may watch the comings and goings of the flying boats. On the ground floor behind the ticket offices and baggage counters are offices for traffic control, a radio station, pilots' rooms, mail sorting room, and other general offices.

This building has been erected on a spit of ground, portions of which had to be reclaimed and all of which had to be raised some three feet in order to avoid flooding during hurricanes. The water-front is faced with piles and a concrete capping.

So much for Miami. As soon as this is left behind the other American-controlled stations in the Indies are, for the most part, very different propositions. Nuevitas, in Cuba, is typical of many of them. One finds a small wooden or corrugated-iron building with a booking counter, some space where passengers may rest, sometimes a small buffet, and usually a verandah around the outside for shade from the tropical sun.

San Juan, in Porto Rico, is a little more

San Salvador, Salvador.



Managua, Nicaragua.

San Jose, Costa Rica.

tious, as it is likely to be terminal for the first section ne South American service. eems probable that before long the through services to southern continent will e San Juan their first stop, engers from intermediate ds being brought there by r services. For this reason,

a Cruz, Mexico.

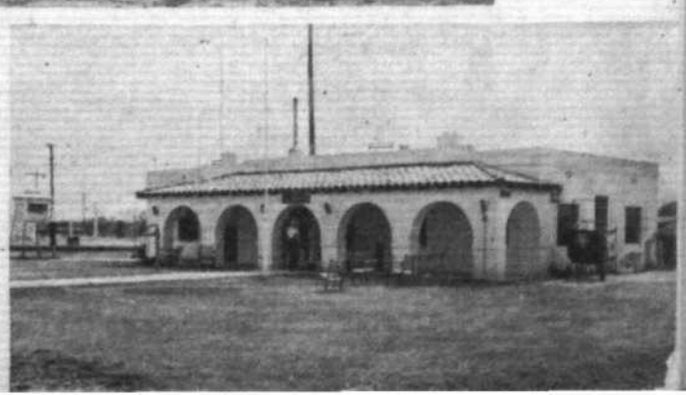
also because Porto Rico is American territory, it greater importance than the station of any other Indian island. The harbour is large, though what narrow, but the wind is almost always down ength. An aerodrome adjoins the landing stage, the buildings, therefore, serve both aeroplanes and g boats. The photograph of the building shows it e the extensions, at present in hand, have been ied. It is a fairly straightforward Spanish style, n-cast, with red Roman tiles. It readily lends itself to nsion and is altogether a most economical type of ing.

actically at the other end of the scale is the accom- ition at Kingston, Jamaica. The portion of the our used for landing is at the extreme eastern end, as passengers are not brought out from Kingston itself they can be embarked, there is no accommodation than a few benches on the front verandah. Inside mall wooden hut is only the counter at which the oms officials and the booking clerk attend to their s.

anish influence can be seen in the buildings over the e of the southern half of the United States and down gh Central America. Of course, the styles of the idual buildings vary, but generally they are either n-cast buildings with red Roman tiles or else rather -looking corrugated iron. The illustrations I have ed from Central America include David, in Panama;

ux, Arizona.

Tucson, Arizona.



Tapachula, Mexico.

Tegucigalpa, Honduras.

San Salvador, in Salvador; and Vera Cruz, in Mexico—all of the Spanish type; and San Jose, Costa Rica; Managua, Nicaragua; and Tegucigalpa, Honduras—of the corrugated iron type.

One other type remains, and that is the open thatched-roof shed of Tapachula, the frontier station of Mexico on the southern border. This I thought unique and practical. It kept the sun off admirably, was as cool as anything could have been at that furnace of an aerodrome, and must have been as cheap as possible to build.

All these airport buildings provided about the same accommodation; some were slightly smaller than others, and at all of them it was accepted that the growing traffic would necessitate extensions before very long. Perhaps the prettiest, while at the same time most practical, is David. At the time I visited this airport the aerodrome was covered with luxuriant grass; it was very early in the morning, before the sun was too scorching, and the tropical flowers were at their best. The inside was invitingly cool, and the officials went about their business with an alacrity which was noticeably absent later in the day. The small central hall forming an inside extension of the large front verandah was attractively decorated with coloured posters, and there were plenty of chairs for the passengers to rest in while refuelling was in progress.

In the hot belt across Texas and Arizona, which is traversed by American Air Line's transcontinental route, the buildings still show Spanish influence, but are more austere in character. The country there is hard and forbidding, and the aerodromes are mostly devoid of vegetation, so that, when after flying over miles of what looks little better than desert, it is not surprising to find a building appearing like a fortress built to withstand attacks by

Big Spring, Texas.

Cincinnati, Ohio.

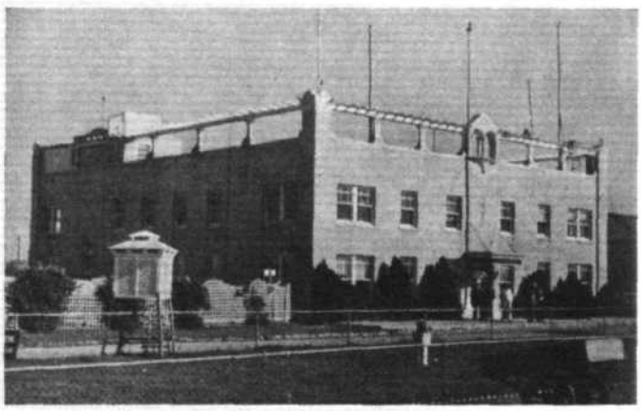
man and climate. The drains from the flat roofs of the Phœnix station building almost look like rifles poked through holes, and the imagination conjures up the scenes of long ago when attacks by North American Indians were the daily lot of settlers. The stations situated in this sort of country vary greatly in detail, but they are of the solid character which enables reasonably equable temperatures to be maintained inside either during the terrific heat of summer or the biting winds of winter.

Leaving the south and coming north, the whole aspect of the airports changes. They become scenes of greater activity and give indication that they are of more commercial significance and that there is a larger amount of capital sunk in them.

The airport buildings are almost always large, imposing structures which, though they vary greatly in character, are generally on a grander scale than those of the south. I was not able to visit more than a few, and have selected for illustration those of St. Louis, Columbus, Cincinnati, and Tulsa. The first named has a large central hall surmounted by a floodlight on top of a form of control tower. Offices of various kinds form the central portion of the building, which is flanked by restaurant and booking counters. The general design is both distinctive and modern, but does not appear to me to permit extension quite so easily as do some others. Columbus might well be mistaken for a military academy or a large school. The central portion serves much the same functions as at St. Louis, but the flanks are larger and the full two storeys high, so that they rather tend to overshadow the centre. Being of brick, it somehow looks less modern than do other airport buildings, and rather suggests a Government-run foreign railway station.

Cincinnati is entirely different from the preceding two. The control tower forms one corner, while the rest of the building is entirely regular and rather monotonous. The office and other accommodation is just spread along the extent of the two floors. The large hangars at this airport are not unlike the Government ones at Lympne or some other R.A.F. aerodromes. At Tulsa I thought for one

Cincinnati, Ohio.



Tulsa, Oklahoma.

moment that I was going back to the area of Spanish influence, but after inspection I decided that this was not the intention of the designer; the building, however, was very different from any other of the more northern ones which I saw. The hangar was one of the type which has offices, two storeys high, along the length of one side. I should have liked to have seen the interior of the airport building here, but we made a stay of only a few minutes.

The general impression of the buildings in the more northern States was one of progressive architecture which has been given its chance. It seemed as if those responsible for the designs had seen in airport buildings a heaven-sent opportunity to get away from the common or garden, and in most cases they had, with a sigh of relief, set to work to produce something which, while being practical, at the same time gave them rein to try out ideas which had probably been simmering in their minds while they had been laying out railway stations, hospitals, barracks, universities, and factory offices.

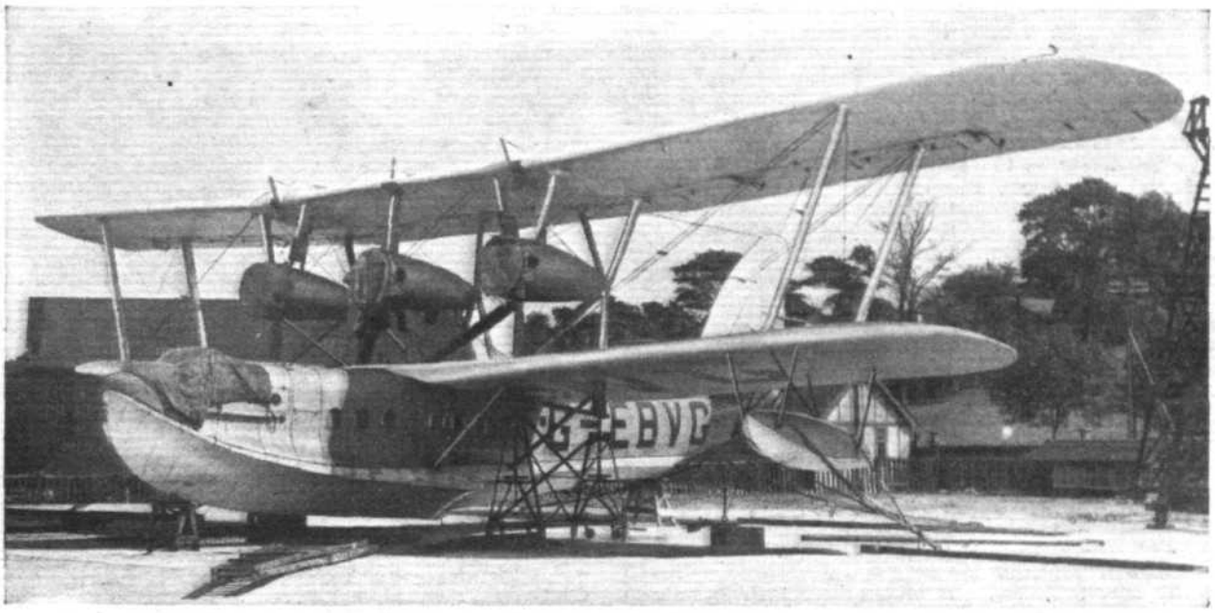
The chief point wherein I could find fault was the small amount of easily discernible evidence that provision had been made for expansion. I got the impression that the attitude was to scrap a building when it became too small and then to build afresh. It is, of course, quite impossible to give anything like a comprehensive survey of the whole of the American airport buildings in one brief article, and I am fully aware that there are many wonderful examples of perfect collaboration between the practical and architectural sides which ought to have been mentioned, but as my trip was made only to visit certain specific air lines rather than to review the airports, I have been limited in my choice of material. However, I saw enough to confirm my opinion that in the matter of airport design America has gone farther than most other countries and that there is a great deal to be learnt "over there."

Tulsa, Oklahoma.

Columbus, Ohio.

COMMERCIAL AVIATION

— AIRLINES — AIRPORTS —



VETERAN : The original Short Calcutta, which is now back at Rochester after seven and a half years on Imperial Airways Empire routes, and is being fitted with Armstrong-Siddeley Tiger engines preparatory to its use as a training machine for Imperial pilots. (*Flight* photograph.)

THE WEEK AT CROYDON

Two Headline Arrivals : Fast Charter Trips by Two Companies : The R.A.S. Winter Schedule : Standards of Comfort

MR. F. W. RICKETT, genial and unperturbed, landed at Croydon from Budapest on Friday night. He had come from Cairo to Budapest by the K.L.M. Eastern route, stopped there for a day and continued by the linary service. He really ought to have come home *via* ieva and had a look round that interesting city on the way. rdes of reporters met him as he stepped from the machine. His attitude seemed to be that he was a plain business n, and he did not see why the politicians of Europe should erfere with him. For three days he was expected by the ssmen of London, and it is said that the airport buffet had be restocked again and again.

Another interesting visitor was Count Felix von Luckner, rting sea-raider during the War, whose exploits with the ing vessel *Seeadler* are well known. He arrived, big, ezy and as full of tricks as ever, with his wife, by D.L.H. m Berlin. It is quite on the cards that his pilot, too, y have been one of those who did a little air raiding over idon during the War. Count von Luckner entertained aerodrome staff at the hotel not only with stories of sea exploits, but with such strange phenomena as breaking an ordinary lead pencil with one blow of a ten shilling e and tearing a telephone directory (A to K) right across. idedly a man to have on our side during any war.

Olley Air Service made a remarkable flight during the k, when Mr. T. W. Morton flew Lady Hugo Cunliffe-Owen m Heston to Jerusalem. Using a Rapide, they left ston at 5.30 a.m. on Wednesday, September 11, and arrived Athens at 7.30 p.m. Leaving on the next day at 7.53 a.m., y arrived at Jerusalem at 1.10 p.m. The distance is about 50 miles, the flying time was approximately 19 hours, l the average speed was around 177 m.p.h. It is believed be a record for the England-Palestine air journey. Capt. P. Olley, too, made a fast return flight between Croydon l Le Bourget with a financier passenger. He broke the rn trip record by 8 minutes.

Commercial Air Hire have been extremely busy during the past week. On September 10 they ran a "special" from Sandown to Cherbourg for a passenger catching a boat, and on September 12 another "special" to Belfast with the newspapers. At six o'clock on the same day this firm received a radio message from a boat at sea to collect a stretcher case (with a broken leg) on the boat's arrival at Southampton. The case, with doctor and nurse, was flown to Liverpool, where a night landing was made. The machine then returned empty to Croydon. The Inner Circle service, by the way, will probably be continued throughout the winter.

Railway Air Services Croydon-Glasgow route changed over to winter schedule last Monday. Northbound machines leave Croydon at 9.45 a.m. instead of at 3.10 p.m., and arrive at Glasgow at 2 p.m. instead of at 7.30 p.m. Southbound machines leave Glasgow at 9.15 a.m. and arrive at Croydon at 1.30 p.m.

Working on Wheels

Somebody wrote recently to a certain extremely conservative newspaper to say that it was practically impossible to work in a modern express train, and this roused the newspaper to a long leading article (not untinged with a spice of anxiety) striving to prove that it could be done, and that the feat was somewhat remarkable and worth boasting about when actually achieved. Nobody would deem a leading article necessary to prove that you can work as comfortably in a modern air-liner as in your office.

Incidentally, the article lauded "the intimate glimpse of England"—afforded by the train—"unknown to those who travel by air or in low-seated motor cars." Precisely what the air traveller never has inflicted on him are those "intimate glimpses" of the least reputable side of slum houses, and the backyards full of mouldering rubbish, festooned with washing.

What, too, has the railway to offer in exchange for the exquisite beauty of the cloudscape seen from above? Only the gritty clouds of view-obscuring smoke vomited by the engine.

A. VIATOR.

Commercial Aviation

EX HESTON

On the Jersey Route : The Value of Special Equipment : Developing an Inexpensive Aero Engine : An Interesting Charter

IN conditions of reasonably good visibility few air routes give the passenger better value for money than that to Jersey.

Travelling by Jersey Airways from Southampton, the machine flies over the docks, with a panoramic view of the whole area of Southampton Water and of the Hamble estuary, over the Solent with its yachts, over the Isle of Wight and, by virtue of the regulations, over Alderney, with the French coast ten miles to the left. Returning by the direct route to Heston, passengers can see the whole of the Isle of Wight with its multitudinous resorts, the forts of the Solent, Portsmouth, Hayling Island, the South Downs, Brooklands and, if they are lucky, most of London spread out to the right. While flying last week with Mr. Blythe, the chief pilot of the company, we saw the *Bremen* in the docks and, while we were returning, making its way to Cherbourg, as well as an aircraft carrier, complete with destroyer, steaming out of Portsmouth—perhaps to Malta.

The aerodrome in Alderney, which lies near St. Anne, is going ahead rapidly, and a Dragon has already landed there. Jersey's aerodrome at St. Peters, on the western end of the island, is still in a ploughed state, but should be ready for action early next year.

Meanwhile, the pilots know all there is to be known about beach landing in all conditions. The good record of Jersey Airways proves that the pilots have their Rapides and 86s absolutely "buttoned up." Mr. Blythe came into both St. Helier and Heston without even "rumbling" in accepted transport manner, adjusting his approach at Heston with the hydraulically operated flaps. He glides the Express at about 80 m.p.h., crossing the boundary at 75 m.p.h., so that the machine sits down almost as soon as it is held off with little or no tendency to float. It is all a matter of practice—and the Jersey pilots certainly get that.

Incidentally, the exceptionally complete equipment of the Jersey 86s makes the pilots' jobs rather more easy than it might otherwise be. The Kollsman sensitive altimeter allows the machine to be brought gently down either to the beach or into Heston in conditions of very bad visibility once the barometric pressure has been verified, and the rate of climb indicator not only allows absolutely level flight to be held—a difficult matter in bad weather—but also enables the pilot to choose an accurate rate of descent which will not affect the more sensitive passengers' eardrums. On the return journey, Mr. Blythe crossed the Channel at 5,500 ft. for the comfort of the passengers and started the descent from Portsmouth at such a slow rate that few of the passengers can have realised that the 86 was down to 800ft. for the circuit of Heston.

Apart from the novelty of the Pou du Ciel, built and flown by Mr. S. V. Appleby at Heston recently, a very great deal of interest centred round the engine used in his machine. This engine, a Carden modified Ford Ten motor car unit, gave a performance which created great interest. It will be remembered that this engine was fitted with an aluminium head, special crankshaft, Elektron induction manifold, and other specially lightened parts. Early results from this engine prompted Sir John Carden, an experienced private owner and well-known in engineering circles, to have aircraft designs, prepared by one of the foremost aircraft designers, based on this engine. The design calculations have shown that after making all allowances a practical aircraft can be designed with a Carden engine having cruising speeds of over 80 miles an hour.

A company, Carden Aero Engines, has now established itself at Heston for the development and production of the Carden aero engine, and this company hope for the co-operation of aircraft designers interested in the market which this £65 engine will open and will be prepared to loan engines to bona fide designers for experimental work. Mr. S. V. Appleby has, in fact, left the staff of Airwork to join Sir John Carden.

Birkett Air Services co-operated in a particularly fast piece of Press work when they carried a complete picture telegraphy unit to Brussels the other day. This was unloaded from the Scion, used for transmitting pictures of Queen Astrid's funeral, restowed in the Scion, and flown straight on to Geneva. There important pictures were again telegraphed back to Fleet Street before the equipment was flown back to Heston.

Leicester's Radio

THE Air Ministry has, after all, informed the Leicester municipal authorities that it cannot provide the airport with D/F equipment until the New Year. Their refusal is a blow to Crilly Airways, Ltd., who were hoping to run to schedule throughout the winter. The Corporation would have borne a tenth of the cost of the installation.

Crilly Airways have taken delivery of their first Jubilee Monospar, and this has been used on the Leicester-Liverpool service since Wednesday of last week. In due course three will have been delivered, and the Crilly fleet will consist of these and three Dragons.

The Air France Cuts

IT is hard to feel anything but sympathy for the pilots and staff of Air France, who have just had a 10 per cent. salary cut inflicted upon them by the French Government. *Flight*, of course, does not venture to teach the French how to manage their own affairs, but the common sympathy between all air pilots prompts the following reflections.

The cut may be necessary as a measure of national economy but there is something very arbitrary about it. Because the company is subsidised, its members are regarded as civil servants and the pay cuts of the civil service have been automatically extended to the air company. Are the advantages of the civil service also automatically conferred upon the Air France employees? Does the Government guarantee a pension at the end of so many years' service and in the case of less well-paid employees than the pilots? Do the Air France people enjoy regular salary increases year by year up to a certain figure so that they know how to budget for the future? Has the ordinary employee of the French national air traffic company the same security of tenure of his job as the French civil servant? National emergencies here and elsewhere have obliged Civil servants to submit to temporary cuts of salary, but when a body of men has to submit to the disadvantages of Government service without its advantages—"*facit indignatis versum.*"

In South America

A D.H. Dragon belonging to Viacao Aerea Sao Paulo S.A. was put to important use not so long ago. A business man, stationed some three hundred miles from Sao Paulo, South America, suddenly contracted a serious infection which involved the amputation of his right foot.

He was out of touch with medical facilities, and the train journey to Sao Paulo would have taken twenty hours, so the Dragon was chartered and the man flown to the hospital in 2½ hours.

America Comes In

SINCE the company was originally formed for the purpose of arranging for fast machines to meet the Atlantic liners at Plymouth, British-American Air Services have, while negotiations proceeded, built up a very fine race-going business. At least one machine is flown regularly to all the most important racing events, and straightforward charter work is, of course, done at the usual rates.

Now, however, since Mr. Douglas Gibbs' visit to America, arrangements have been made with both the U.S. Lines and the French Lines, and the name of the company is likely to be fully justified. It is probable, too, that the German Lines will be brought into the scheme, though only their smaller Atlantic liners call at Plymouth.

British-American now have one luxuriously equipped Rapide and a Leopard, while a Hornet Moth, which is to be Mrs. Gibbs' private machine, will presently be available for carrying single passengers or photographic plates and so forth.

It is interesting, sometimes, to discover just how conservative an otherwise modern section of the community can be. Before the T.T. race in Northern Ireland a great many car dealers were prevailed upon to advertise the fact that B.A.A.S. were ready to carry spectators, competitors or spares to Newtownards—which, incidentally, abuts the actual course. Only one enquiry was received. Air transport has a long way to go yet before it can be said that the modern travelling public is using it as it should be used.

Blind Flying Training

)UR more schools and clubs have been added to the official list of those qualified to give courses of training in instrut flying. These are the Cinque Ports Flying Club, Lympne)drome, Kent; the Far East Flying Training School, Ltd., g Kong; the Scottish Flying Club, Renfrew Airport, Ren- ; and the Witney and Oxford Aero Club, Witney Aerone, Oxon.

Air France's Forty-seater

GGER and better aeroplanes are on the stocks for Air France, the largest, so far as is known, being the comcial version of the Farman F-220 long-range heavy bomber in series production for the Armée de l'Air. There will accommodation for forty passengers, the seats being nged in pairs on each side of a central gangway.

ructurally, the type will be a high-wing braced monoplane four 1,000 h.p. Hispano-Suiza 14 Ha two-row radials, driving tractor airscrews and the others functioning as ers. The undercarriage will retract into the engine lles and the maximum speed is expected to be 186 m.p.h. is known that Farmans have designed a single-spar wing he F-220 type, to be braced by single struts on each side ie fuselage, but whether these features will be incorporated ir France's machine has not been stated.

Towards Finland

Sunday, September 8, the new aerodrome at Artukais, Abo, Finland, was opened. This is the first of three which be used to link Stockholm with Helsingfors in due course, is the most northerly in Europe. Bromma Airport, kholm, is progressing rapidly and will be opened in May ext year.

ie new Artukais airport is circular in shape and has eight uate runways, three of which are cemented. It is well ied in order to cope with the winter fall of snow and the ing thaw.

the opening, the Finnish President was present and ines were sent by both A.B. Aerotransport and Deutsche Hansa. The Polish line, L.O.T., was represented, as well .L.M., Air France and Deruluft, and a machine of the named company has been making experimental flights een Warsaw and Malmö as a preliminary to opening a lar service.

cidentally, A.B.A. have, since June, 1924, now carried)00 passengers without casualty, and have had no forced ing since 1929.

To Hong Kong

EXPERIMENTAL flights are to be made by Imperial Airways over the Penang-Hong Kong route next month. A D.H.86 machine will be used and the route will be by Hue, Tourane and Saigon. Capt. Armstrong will fly the machine.

Skål . . . !

SWEDISH crayfish, smoked reindeer, roast elk, Swedish apple cake and Swedish cheese—to say nothing of schnaps and punch—were some of the reasons for which Mr. A. B. Ostelius's party last Saturday will not be forgotten for a long time. It was held at the recently enlarged premises of the Swedish Chamber of Commerce in London, and with the exception of English potatoes and Dutch beer all the food and drink had that same morning been flown over from Sweden.

The occasion was the first public announcement of the new arrangement between A.B.A., the Swedish air line, and the K.L.M., whereby a traveller will be able to make the journey between London and Stockholm in about eight hours, and between London and Leningrad in about ten hours. This service will start early in May next year.

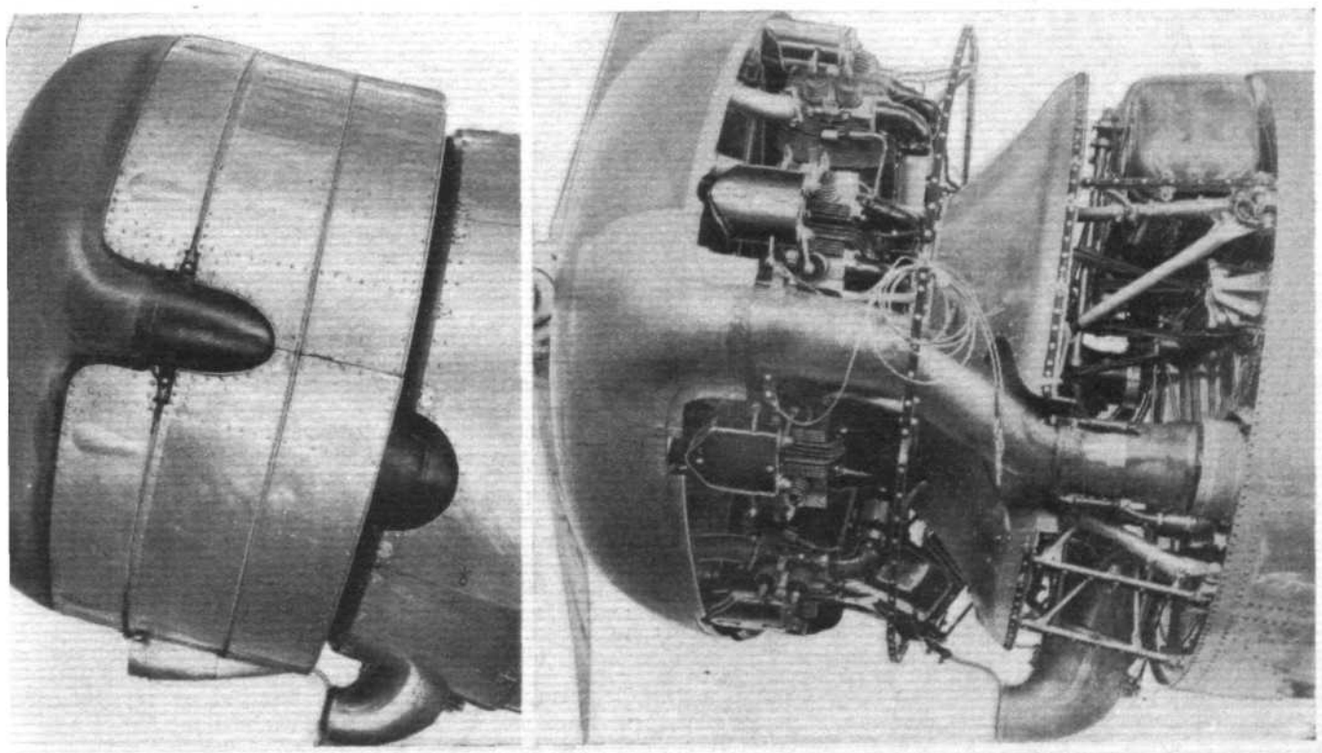
A Half-ton Punch

"FOR the consolidation of large masses of earth" a half-ton mechanical rammer called the "Frog" is being manufactured by C. Johnson and Sons, Ltd., of Smedley Road, Manchester, and should be of interest to those concerned with the preparation of aerodromes.

The whole machine is built at an angle and springs forward from 6 to 8in. with each blow, leaping about 14in. into the air. This motion is obtained through the explosion of a mixture of gas and air, the mixture being fired by a sparking plug connected with a battery with which the operator is equipped. Neat benzole, and not benzole mixture, is used. The outer cylinder of the rammer incorporates a water jacket, which increases the weight considerably.

A single track made by the rammer is about 2ft. 3in. wide. Should the ground slope upwards, forward movement is facilitated by the insertion of a wedge supplied with the machine. From fifty to sixty blows a minute can be delivered.

It is claimed that the capacity of the machine is about 400 cubic yards an hour, and it has been found, according to the makers, that after it has passed over an area of hard clay three times, and the ground has been subsequently dug up, that perfect consolidation has been effected to a depth of ten feet.



GASUS-POWERED. The installation of 690 h.p. Pegasus III engines in a pair of Douglas D.C.2's for Poland has eady been recorded in *Flight*. These views show the nose type exhaust ring and the cowling and it is also possible to see how the exhaust pipe is led into the nacelle.

Commercial Aviation

SLEEVE VALVES IN SERVICE

Good Results Obtained with First Perseus Engines in Commercial Operation

THE first Bristol sleeve-valve engines to be operated commercially are four Perseus II L civil-rated engines which were purchased by the Air Ministry and issued on loan to Imperial Airways for installation in the Short *Syrinx*. Two of the original Jupiter XFBM poppet-valve engines were replaced by a pair of the newer type of power plants. With this combination of poppet- and sleeve-valve engines, *Syrinx* was put into regular service between London and Paris on June 29, providing a valuable preliminary test for the sleeve-valve units under operating conditions.

The Perseus civil-rated engine is a nine-cylinder air-cooled radial developing a normal power of 640/665 h.p. at 2,200 r.p.m. and a maximum of 740/770 h.p. at 2,252 r.p.m. On the regular trips between London and Paris the two Perseus engines ran for 317 hours and 292 hours respectively between June 29 and August 4, 1935. In accordance with the predetermined schedule to overhaul the engines at the conclusion of 300 hours' running, they were returned to the Bristol works for complete dismantling and to be subjected to close scrutiny.

Particular attention was directed toward the condition of such items as sleeves, cylinders, pistons, and piston and junkhead rings. Without exception, it is stated, each item was found to be in excellent order.

The inspection report states: "The sleeves were in good condition and free from scores . . . the condition of the junkheads was good . . . carbon deposit was thin and could easily be removed . . . the pistons were in good condition and unscored." The more orthodox components were also in excellent condition.

The official report was confirmed by a covering letter from Imperial Airways, which stated that the initial oil consumptions compared favourably with those obtained with the poppet-valve engines, and showed a steady decrease throughout the running period.

Lately *Syrinx* has been fitted with the two remaining Perseus engines, and, in conjunction with the two original Jupiters, tests are being conducted under similar conditions. The inter-overhaul period of 300 hours, which was decided upon for the purpose of obtaining data under service conditions, will be considerably extended during subsequent running.

With two Jupiters and two Perseus engines the cruising speed of *Syrinx* was increased by 8 m.p.h., the fuel consumption being considerably reduced as compared with the original four-Jupiter installation. Due to the conflicting optimum speeds of the two types of engines, it was not possible to operate at the maximum efficiency. However, when *Syrinx* receives four Perseus engines the figures should further improve.

The Lille Service

BRITISH CONTINENTAL'S London-Lille service will probably be started before the beginning of next month. The delay has been caused by the inadequacy and the need for improvements at the aerodrome and, even now, D.H. Dragons will probably have to be used rather than Rapides and 86s. The service will be run experimentally throughout the winter.

At the end of this month the holiday services will be discontinued, though the company hopes eventually to obtain permission to run a daily service to Brussels.

CHINA SAW ITS FIRST AUTOGIRO when Flt. Lt. A. D. Bennett, R.A.F.O., of Aircraft (China) Ltd., recently gave demonstrations of a direct-control model in Shanghai and other large towns. The machine was eventually taken over by the Chinese Central Government Air Force for trial. In the photograph above are (left to right) Marshal Chiang Hsu Liang, his chief of staff, and Flt. Lt. Bennett.

Through to Stockholm

AS recorded elsewhere in this issue, the Scandinavian Air Express will open a through service from London to Stockholm. The present service is from London to Oslo by air and thence on by train to Stockholm. There will thus be a great saving of time for passengers for Stockholm, Helsingfors and Leningrad.

During the winter, of the internal services in Holland, only the Zeeland line will be operated. A daily service (except Sundays) from Amsterdam, *via* Rotterdam and Haamstede, to Flushing, will be run.

Since April this year all letter mails from Holland to England and other European countries have been dispatched by air. The increase in mails carried for May, June and July over the corresponding period of 1934 was about 50 tons.

Mr. A. Plesman, the K.L.M. general manager, and Mr. P. Guilonard, the assistant general manager, are leaving for America on September 14 on a business visit.

All visitors by air to London from Amsterdam, Rotterdam and Berlin for the International Motor Cycle Show will be granted a special 10 per cent. reduction on the usual fares for the journeys.

Fire Extinction by Bomb

SOME details are now available of the method of operation of the Pyrofuge fire-extinguishing bomb, to which reference was made in *Flight* of August 22. The bomb may be included under the category of extinguishers which utilise solid substances (normally reduced to powder) capable of partly transforming themselves, when exposed to heat, into an inert gas.

It is composed of a container made from special waterproof cardboard containing over eleven pounds of extinguishing mixture. Inside the container is an explosive cartridge ending in a special fuse which is connected with the outside of the container, where it terminates in several cellulose fillets which ignite as soon as the temperature rises to 140 deg. C.

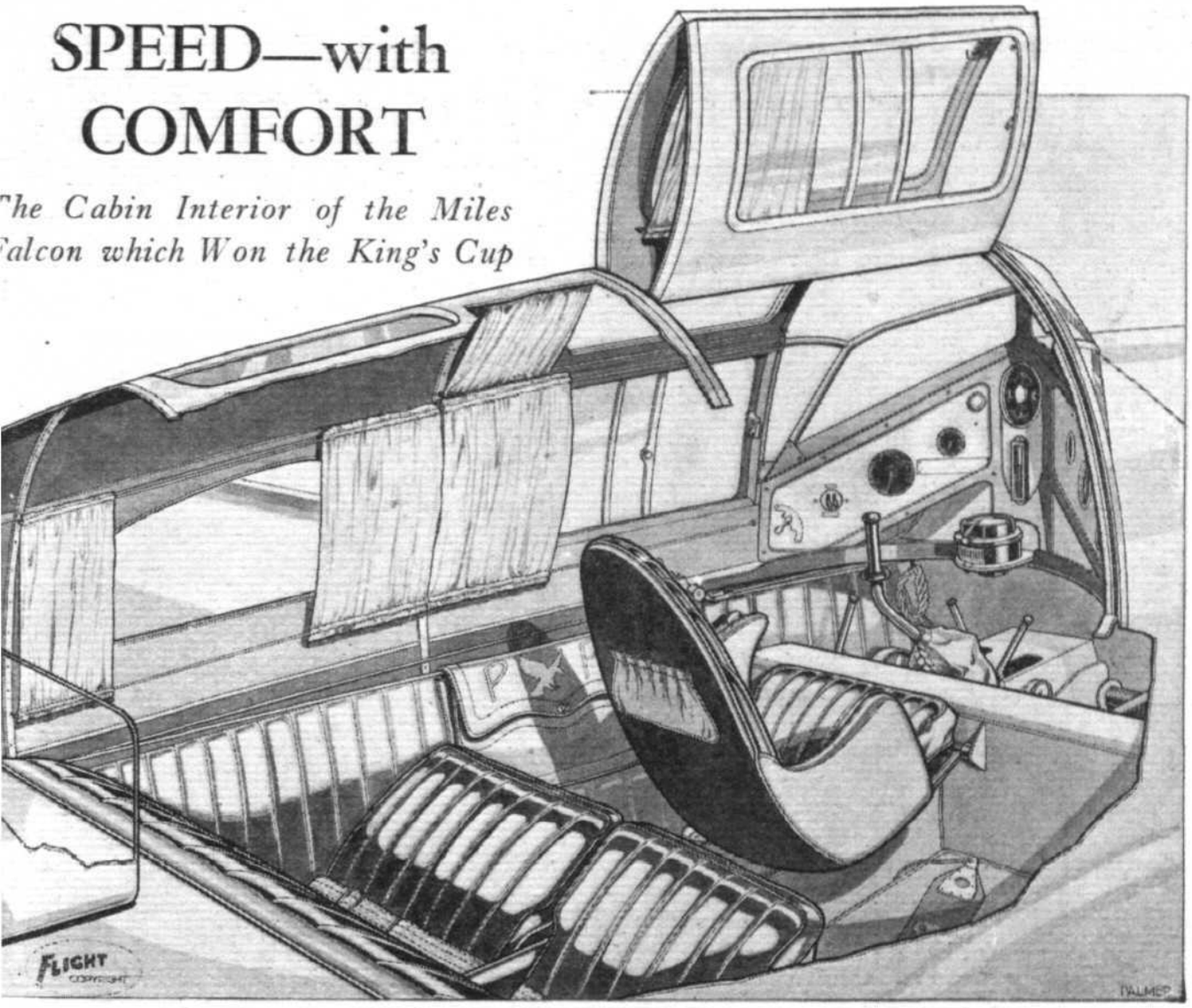
No preliminary preparation is needed before the bomb is used, and the extinguishing mixture does not, it is claimed, damage unburned surfaces. The powder sprayed on them can be easily brushed off. No harm can be done either to the user of the bomb or to surrounding objects by the explosion. Should the bomb be fixed, say, in a building, the noise of the explosion should be sufficient to attract attention to the conflagration.

Supposing that the bomb has been fixed to the ceiling of a room, the extinguishing mixture will spread itself in the shape of a sphere about thirteen feet in diameter. Similar results are obtained when the bomb is held above the fire by means of a pole in a horizontal position. The bomb is equally effective even if thrown from a few yards distant.

A British company is to be formed to manufacture the device, which is of Italian origin.

SPEED—with COMFORT

The Cabin Interior of the Miles Falcon which Won the King's Cup



A cut-away view of the cabin of the machine which, in the hands of Flt. Lt. Rose, won the King's Cup at 176.28 m.p.h. Providing comfort better than that of the majority of motor cars, the Falcon's upholstery (by Rumbold) is extremely pleasing. Among the instruments can be seen the Sestrel compass, Reid and Sigrist turn indicator, and an array of Smith's aircraft instruments. On the left of the control column is the flap-operating lever, and in front are those for brakes and tail trim.

ONE of the dangers of winning races with any form of transport vehicle which is built for sale to the public is that the winning machine is apt to be regarded as a special racing job—sometimes with ification.

/ith cars this latter is generally the case, but racing planes are, more often than not, absolutely standard lels. Sometimes, when the machine belongs to a pri- owner who has the time and/or the money to spare, ection will show that quite a considerable amount of a streamlining has been added; but, even then, under- h this racing "complexion" the machine will gener- be found to be standard. The present handicapping em does not make streamlining worth while unless it rried out to such an extent that there is a good chance he machine going faster than the handicappers think it will. For that reason, manufacturer entries are almost always absolutely standard machines, although, very naturally, their engines are in top-notch condition, the paintwork is as smooth as possible, and attention paid to all small points which make a difference to the speed.

Lady Wakefield's Miles Falcon, which won the King's Cup the week-end before last, was just such a standard machine, and its performance in the race, therefore, tells the potential purchaser far more about the Falcon he can buy than it would have done had it been a "special."

Even more important, in some ways, than the actual speed is the fact that the interior equipment of the cabin was also standard. Its comfort is very well indicated in our drawing above. Made as it was directly after the event, the sketch proves that a successful racing cabin aeroplane can also be a comfortable limousine.

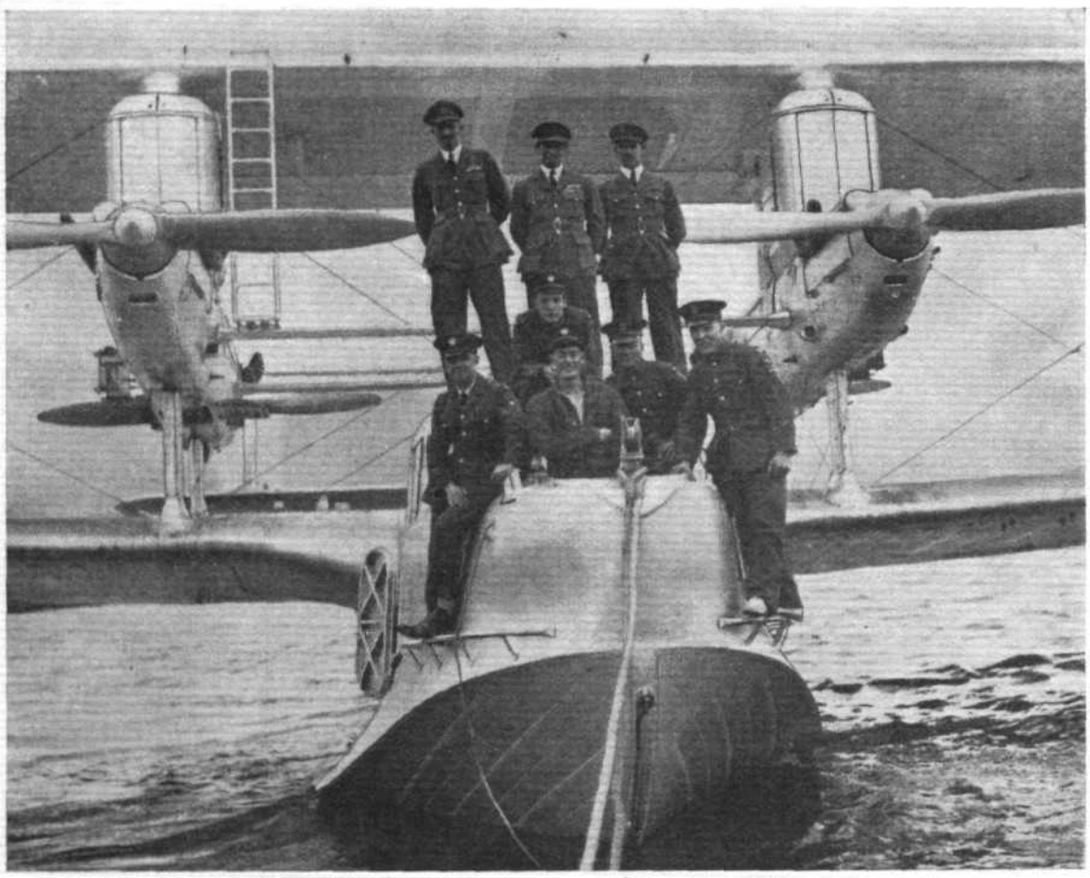
Forthcoming Events

Club Secretaries and others are invited to send particulars of important fixtures for inclusion in the list.

Sept. 21. London-Cardiff Race. Cardiff Aeroplane Club. Start, Heston.
Sept. 21. Pylon Race, Cardiff. Cardiff Aeroplane Club.
Sept. 21. Official opening of Brighton, Hove and Worthing Airport and South Coast Flying Club.
Sept. 28. R.F.C. Association Reunion, Holborn Restaurant, London.
Sept. 28. Round the Isle of Wight Air Race and Portsmouth Air Trophy.
Oct. 12-28. International Aircraft Exhibition, Milan.
Oct. 21. R.Ae.S. Lecture: "Piloting Commercial Aircraft," by Mai. H. G. Brackley, 6 p.m., Institution of Electrical Engineers.
Nov. 29. Yorkshire Aeroplane Club. Annual Ball, Hotel Majestic, Harrogate.

THE ROYAL AIR FORCE

SERVICE NOTES AND NEWS AIR MINISTRY ANNOUNCEMENTS



Group Capt. Saul and crew of a Singapore of No. 203 (F.B.) Squadron, referred to in the opening paragraph below.

CRUISE OF No. 203 (F.B.) SQUADRON

No. 203 (Flying Boat) Squadron, which has been re-equipped with Singapore III boats in place of Rangoons, left Plymouth on September 9 to fly back to its home station at Basra. The three Singapores, flying in formation, arrived at Gibraltar the same afternoon after a non-stop flight of 1,070 miles. This was the first time that such a flight had been achieved by a formation. The boats started on a further stage to Malta, but one turned back to Gibraltar, while the other two stopped at Biserta on the coast of Tunis to await better weather at Malta.

SQUADRONS ON ARMY MANŒUVRES

The Army manœuvres this month are the largest held since 1925. The following R.A.F. squadrons are taking part in them:—Nos. 2, 4, 13 and 16 (Army Co-operation) Squadrons, equipped with the Audax; Nos. 29 and 56 (Fighter) Squadrons from North Weald, equipped with the Bulldog; and Nos. 18 and 57 (Bomber) Squadrons from Upper Heyford, equipped with the Hart.

FORMATION OF NEW SQUADRONS

The following new squadrons will form and will be placed under the A.O.C.-in-C., Air Defence of Great Britain, in the Western Area:—

Unit	*Station*	*Date*
No. 97 (Bomber) Squadron	Boscombe Down	16.9.35
No. 214 ,, ,,	Boscombe Down	16.9.35
No. 38 ,, ,,	Mildenhall	16.9.35
No. 102 ,, ,,	Worthy Down	1.10.35
No. 215 ,, ,,	Upper Heyford	7.10.35

The squadrons will be equipped with heavy bomber aircraft.

MOVES OF (BOMBER) SQUADRONS

No. 18 (Bomber) Squadron will move from Upper Heyford to Bircham Newton. The move is to be completed by 30th September, 1935.

No. 58 (Bomber) Squadron will move from Worthy Down to Upper Heyford. The move is to be commenced by 1st October, 1935. The unit will remain under the command of the A.O.C., Western Area.

SEAGULLS FOR THE R.A.A.F.

The first of an order for twenty-four Supermarine Seagull V Amphibian flying boats built by the Supermarine Aviation Works (Vickers) Ltd., to the order of the Royal Australian Air Force, was embarked on H.M.A.S. *Australia* on Thursday, September 12.

LONG SERVICE AND GOOD CONDUCT MEDAL

The Long Service and Good Conduct Medal has been awarded to the undermentioned airmen:—W.O.s Glendinning, G., Juden, P. A. R., Kitchen, R. C., W.O.2.s Coward, H. H., Gedd, H., Hoggar, A., Flt. Sgts. Blackman, G. L., Booth, W. A., Callingham, A. J., Carey, J., Clarke, E. G., Fairgrieve, N. McK., Farrow, L. H., Gilder, B. E., Grimes, J. P., Lancaster, J. S., Malone, J. T., Martin, E. H. J., Mills, F. G., Saunders, R. L. St. G., Shannon, T., Smith, J. A., Southwell, S., Terry, V. C., Townson, S. E., Warner, F. A., Whear, W. J., Sgts. Baines, V. L. B., Beavis, E. F., Dawes, C. J., M.M., Moir, W. A., Murray, H. P., Robertson, W., Smith, J. F., Talbot, W. J., Turner, R. H., Cpls. Adams, R. J., and Andrews, W. H., Cpl./A./Sgt. Coffey, D. C., Cpls. Davidson, P. N., Griffiths, E. H., Gurr, W. V., Hart, F. R., Hartridge, A. E., Hawker, G. A., Mackie, J. McC., Partridge, E. J., Palmer, K. F. M., Spencer, F., L.A.C. Grimwood, I. E.

MANORBIER LANDING GROUND

e R.A.F. landing ground at Manorbier, Pembrokeshire, has relinquished, and is not available for use by aircraft.

AUTOGIRO LANDS ON H.M.S. "FURIOUS"

ccessful experiments have recently been made in landing an giro on the deck of the carrier *Furious*. Mr. R. A. C. Erie the pilot who made the experiments. Landings were made ie hangar deck as well as on the main flying deck, and, most ole of all, a landing was made with the carrier steaming down . To allow a fixed-wing aeroplane to land on, a carrier must rs steam into wind, which may take her right away from the e of the fleet. No arrester gear was used to pull the Autogiro fter landing.

PRECAUTIONS AT MALTA

cautions against air raids are being taken at Malta. Gas-proof s for demonstration are being prepared in some Government ds, air raid shelters have been ordered in every district, leaflets been distributed giving instructions to people how to act in uids, and the police are being instructed in anti-gas measures. om is being constructed across the harbour, and the military ion is being brought up to establishment by the addition of infantry battalions.

AIRMAN PILOTS

ing to the accelerated expansion of the Royal Air Force, a ber of airmen who have been remustered to their basic trades mpletion of a period of service as pilots may be required at future date to revert to flying duties for a further period. nnouncement will be made if and when this becomes necessary, ntil then applications need not be forwarded.

anwhile, airmen selected for re-engagement who become due for stering to their basic trades between the date of this order April 1, 1937, will not be remustered. Subject to the usual tions, their flying service will be extended until January 1, provided they are so long required.

R.A.F. OFFICERS' GOLFING ASSOCIATION: AUTUMN MEETING

The autumn meeting of the R.A.F. Officers' Golfing Association will be held at Wentworth Golf Club, Virginia Water, Surrey, on Wednesday, Thursday and Friday, September 25, 26 and 27. Further particulars may be obtained from Squadron Leader C. H. Hayward, R.A.F. (retired), Hon. Secretary, R.A.F. Officers' Golfing Association, 9, Priory Grove, London, S.W.10.

R.A.F. BENEVOLENT FUND

The usual meeting of the Grants Committee was held at Iddesleigh House on Tuesday, September 10. Mr. W. S. Field was in the chair, and the other member of the Committee present was Wing Comdr. H. P. Lale, D.S.O., D.F.C. The Committee made grants to the amount of £402 5s. 6d. The next meeting was fixed for September 24.

CENTRAL FLYING SCHOOL CATEGORIES

The undermentioned officers and airman pilots, who attended the Flying Instructors' Course at the Central Flying School from April 29, 1935, to July 27, 1935, have been categorised as follows:—

A.2:—F/O. L. V. Andrews.

B:—F/O.s A. A. Adams, A. W. M. Finny, A. J. Hicks, S. Keane, E. C. Kidd, C. W. M. Ling, J. N. McAuley, J. Ramsden, S. E. R. Shepard, J. C. Sisson, F. D. Terdrey, J. B. T. Whitehead, A. P. S. Wills, Sgts. Graigie, J. A., Evans, W. D., Holdway, C., Holt, F., Johnson, W. J., Lazelle, H., Oliver, G. F., Owens, T. R. W., Scrase, R. S., Sims, C. E., Webb, G. C.

The undermentioned officers and airman pilots have been recategorised as under:—

A.2 to A.1:—Flt. Lt. C. Walter.

B to A.2:—Flt. Lts. H. C. Parker and H. R. L. Hood, F/O.s R. L. Kippenberger, H. Pilling, H. W. Marlow, H. A. V. Hogan, Sgts. Foreman, H. Z., and Stafford, R. C.

C to B:—F/O. J. B. Altham, Sgts. Buchanan, W. G., and Alexander, R.

ROYAL AIR FORCE GAZETTE

London Gazette, September 10, 1935

General Duties Branch

following Flight Cadets, having successfully passed through Royal Air Force College, Cranwell, are granted permanent coms as Pilot Officers with effect from and with seniority of 27:—A. J. Mason, C. S. Cooper, G. E. Wallace, J. W. Arney, J. Clark, H. E. C. Boxer, J. D. Melvin, T. M. Buchanan, Bayley, A. W. D. Miller, D. W. Balden, R. I. Jones, P. W. send, N. B. R. Bromley, W. A. A. de Freitas, F. E. Croce, Philpott, C. D. Hackett, T. B. de la P. Beresford, N. M. Hall, W. Scott-Mackirdy, E. W. Thornewill, A. B. Sowter, D. G. Kelly, L. R. Stewart, J. H. Slater, F. O. Dickson.

following are granted short service commissions as Pilot rs for five years on the active list with effect from and with ity of August 26:—R. E. Dupont, G. M. Lindeman, R. D. nd, V. C. Wood.

Comdr. Miles Cursham, R.N., is reattached to the R.A.F. Squadron Leader with effect from January 11 and with ity of July 1, 1934.

following Flying Officers are promoted to the rank of Flight enant:—B. E. Lowe (August 3); D. McC. Gordon, N. C. rikz (August 21).

following Pilot Officers are promoted to the rank of Flying r:—P. B. H. Butler (July 9); W. M. Graham, H. C. S. Vetch, Strutt, F. E. H. Cooper, A. Ross, N. W. D. Marwood-Elton ust 6).

Comdr. C. J. N. Atkinson, R.N., Squadron Leader, R.A.F., to be attached to the R.A.F. on return to Naval duty (August Group Capt. R. B. Maycock, O.B.E., is placed on the retired t his own request (August 31); Wing Comdr. W. H. de W. r, A.F.C., is placed on the retired list at his own request ember 7); A.P/O. H. E. Forman resigns his short service com- on (September 1); Lt.-Comdr. C. L. Keighly-Peach, R.N., Flyfficer, R.A.F., relinquishes his temporary commission on return to Naval duty (January 3, 1934) (substituted for the notification in the *Gazette* of January 9, 1934).

ROYAL AIR FORCE RESERVE

Reserve of Air Force Officers

General Duties Branch

The following Pilot Officers on probation are confirmed in rank:—J. H. Sindall, E. P. Whitfield (July 9); M. Horan, P. E. Rees, J. L. J. Rowland, E. Sprawson, W. H. M. Walker, G. Watson (August 13).

The following Pilot Officers are promoted to the rank of Flying Officer:—G. K. Murray (March 20); P. B. Powell (August 14).

The following are transferred from class A to class C:—Flt. Lt. A. R. T. Pipon, D.S.C. (September 6); F/O. J. S. Hamilton (November 30, 1934); F/O. J. W. Rayner (September 10).

F/O. E. A. Williams is transferred from class AA(ii) to class C (March 25); Flt. Lt. M. Ballard is transferred from class B to class C (July 6). The notification in the *Gazette* of February 12 concerning F/O. C. McL. Reid is cancelled.

SPECIAL RESERVE

General Duties Branch

M. P. Forte is granted a commission as Pilot Officer on probation (August 10).

AUXILIARY AIR FORCE

General Duties Branch

No. 600 (City of London) (Fighter) Squadron.—P/O. J. E. McComb is promoted to the rank of Flying Officer (August 8).

No. 601 (County of London) (Fighter) Squadron.—W. P. Clyde is granted a commission as Pilot Officer (July 30).

No. 602 (City of Glasgow) (Bomber) Squadron.—R. T. Muspratt-Williams is granted a commission as Pilot Officer (August 16).

ROYAL AIR FORCE INTELLIGENCE

pointments.—The following appointments in the Royal Air are notified:—

General Duties Branch

adron Leaders.—S. L. Quine, M.C., to No. 4 Flying Training l, Abu Sueir, Egypt, 16.8.35; for Administrative duties vice Ldr. A. R. Churchman, D.F.C. T. C. Traill, D.F.C., to No.) Squadron, Amman, 6.8.35; to command vice Wing Comdr. Cockey.

ing Officers.—E. J. N. Heaven, to No. 15 (B) Squadron, Abing- 30.8.35. W. S. Jenkins, to No. 204 (F.B.) Squadron, Mount n, 31.8.35. F. A. Pearce, to No. 5 Flying Training School, ad, 31.8.35.

t Officers.—R. G. R. Buckley, to No. 10 (B) Squadron, Bos- e Down, 1.9.35. G. A. Walker, to No. 99 (B) Squadron, nhall, 1.9.35. C. E. R. Tait, to No. 15 (B) Squadron, Abing- 2.9.35: on appointment to a Short Service Commission.

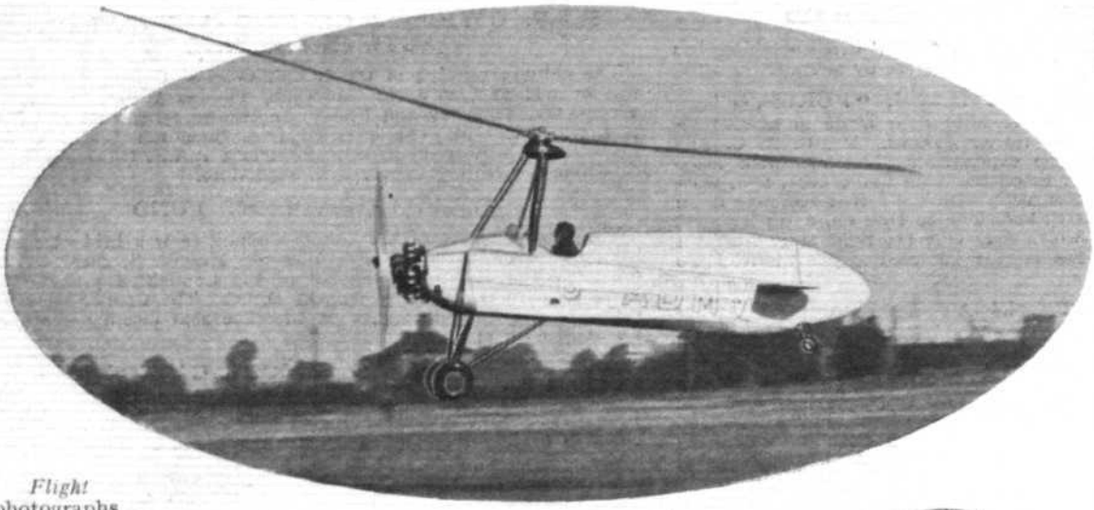
Acting Pilot Officers.—E. G. Campbell-Voullaire, to No. 10 (B) Squadron, Boscombe Down, 1.9.35. K. C. Gill, to No. 7 (B) Squadron, Worthy Down, 1.9.35. H. J. Irens, to No. 7 (B) Squadron, Worthy Down, 1.9.35. C. A. Wood, to No. 7 (B) Squadron, Worthy Down, 1.9.35.

Medical Branch

Flight Lieutenant.—L. S. Everett, to R.A.F. Station, Ismailia, 8.8.35. J. Magner to No. 1 School of Technical Training (Apprentices), Halton, 1.9.35.

Flying Officers.—P. A. Cooper to Central Flying School, Upavon, 1.9.35. L. E. A. Dearberg, to Princess Mary's R.A.F. Hospital, Halton, 1.9.35. R. C. H. Tripp, to Princess Mary's R.A.F. Hospital, Halton, 1.9.35.

Flying Officer.—J. G. B. O'Hagan, to School of Store Accounting and Storekeeping, Cranwell, 5.9.35; on transfer from General Duties Branch.



Flight photographs.

NOTABLE

TWO machines which are still in their experimental stages, and not yet available for the general public, have been flying this week. Neither performance data nor dimensions are available, but already it is possible to see that a great deal of unusual interest is to be found in both machines.

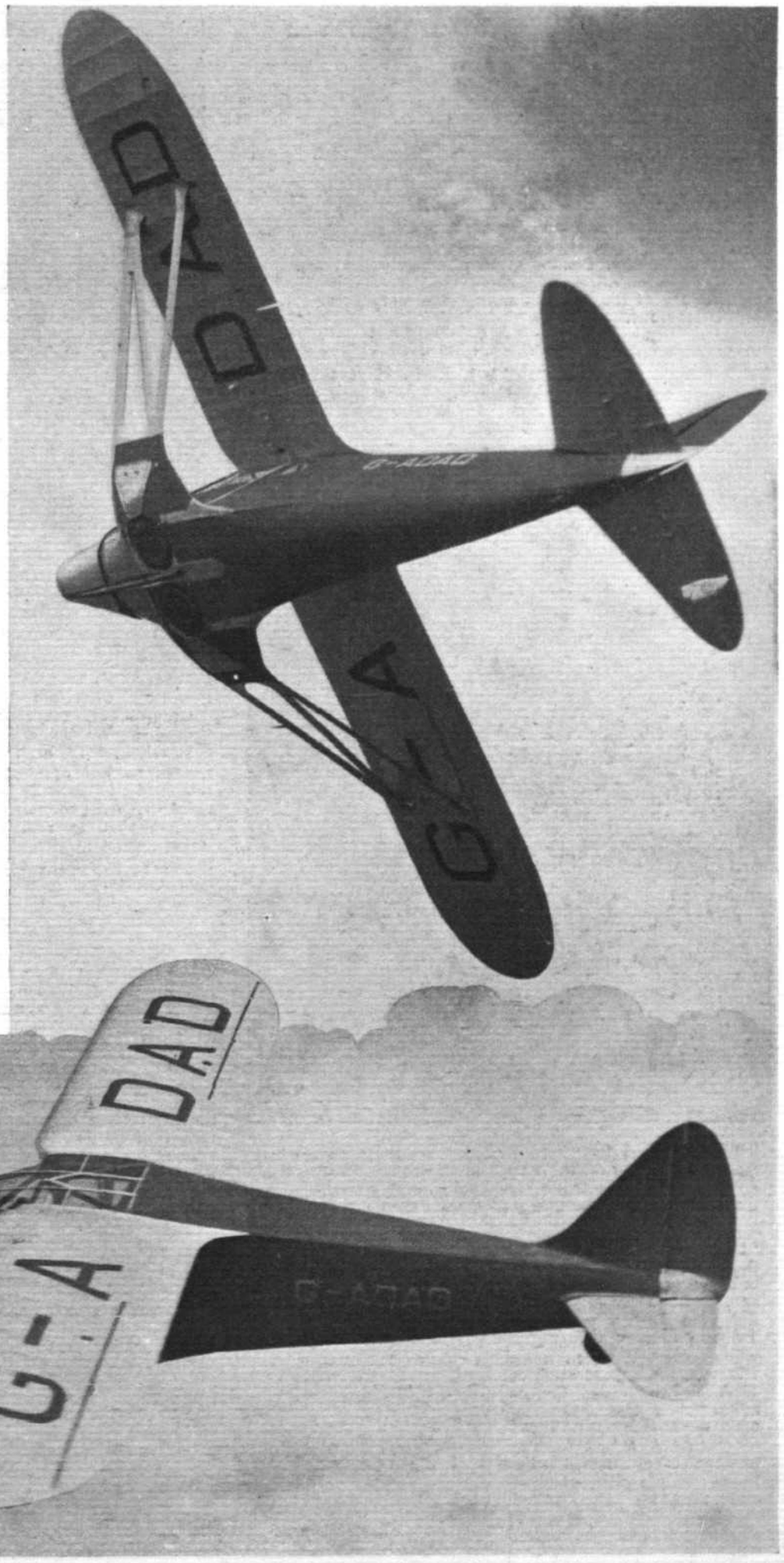
The first is the A.R.III gyroplane (seen in the two views on the left), built by the A.R.III Construction Company at the Martin-Baker Aircraft Works at Denham. A novel form of blade attachment obviates any difficulties due to loads building up on hinges and makes control of the machine particularly light. The variable incidence mechanism by which the machine is controlled about all axes without necessitating the use of a method of tilting the rotor head is effective and simple and has already been proved in flying tests.

It is expected that vertical take-offs will be possible by using the kinetic energy of the blade mass when it is speeded up, before the start, faster than is needed for level flight. A Pobjoy R. engine of 90 h.p. is being used.

Discussing the new A.R.III gyroplane : On the left is Capt. V. H. Baker, chief pilot to Airwork, Ltd., at Heston, and on the right is Mr. R. Hafner, designer of the machine.

'COMERS

evolutionary Gyro-, with Variable In-ce and Frictionless ol for the Blades: xurious Five-seater Monoplane with actable Under-carriage



.T by the Heston Aircraft mpany Ltd., at Heston Air-rt, the new Phoenix, shown right and in the two views will probably have more room son in the cabin than has her similar light aircraft. ot has an exceptionally clear through deep and wide s and the whole atmosphere machine is one of roominess. ovel feature in a strutted ane is the use of a retractable rriage. The photograph on it shows how the wheels are up and inwards—the design component is the work of H. Dowty of Aircraft Com-Ltd., of Cheltenham.

the Gipsy Six engine the looks short, and the general nes should result in a cc m-le cruising speed. An air gedness, which should be ut in practice, is given to the by the curvature of the sides, and the strength of ure should make the machine e for commercial operators not afford to be loaded with t upkeep costs due to cutting irframe weight in order to greater pay-load.

HERE and THERE

The Blackpool Accident

AT the inquest on the three persons—the pilot and two passengers—who were killed when one machine of Sir Alan Cobham's display came into collision with another during a formation flight over Blackpool, verdicts of death by misadventure were returned.

Ex-R.F.C. Reunion

THE annual general meeting and re-union dinner of the Ex-R.F.C. Association takes place at the Holborn Restaurant, Kingsway, London, W.C.1, on Saturday, September 28. Early application for tickets (6s.) should be made to the secretary of the Association, c/o the manager of the Holborn Restaurant.

Group Capt. Maycock Joins Handley Page

IT is announced that Group Capt. R. B. Maycock, O.B.E., Officer Commanding the R.A.F. Station at Upper Heyford, whose resignation from the Service was announced last week, is taking up an important position on the staff of Handley Page, Ltd.

Up to the time of his appointment at Upper Heyford in February this year he was British Air Attaché in Argentina, Brazil and Chile, a post which he has held since 1931.

Group Capt. Maycock entered the Royal Navy in 1913, transferring to the R.N.A.S. in 1915. He learned to fly at Cranwell in 1917, and, following completion of a flying boat course, he was appointed in 1918 to command a squadron stationed in the Scilly Isles. In 1919 he was granted a permanent R.A.F. commission and appointed to the Air Ministry.

From 1926 to 1928 he commanded the Marine Aircraft Experimental Station at Felixstowe, in which capacity he was in charge of all the early long-distance flying boat development cruises.

A NOTABLE WEDDING. The marriage took place at Hampstead Register Office last week of Mr. H. O. Short and Mrs. Violet Blackburn. Mr. Short, of course, is the well-known flying-boat expert, and chairman and managing director of Short Bros., of Rochester.

POWER FOR THE "POU." The new Carden engine installed in a *Pou-du-Ciel*. Based on the 10 h.p. Ford, it has an aluminium cylinder head and dual ignition. Carden Aero Engines Ltd., of Heston, are to market the engine at £55.

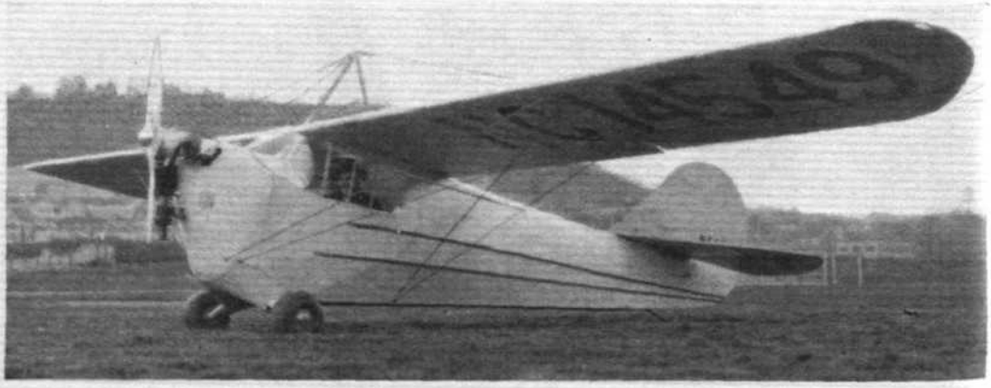
Honour for American Expert

A RECENT election as vice-president of the Institute of Aeronautical Sciences in the United States is that of Mr. Eugene E. Wilson.

Mr. Wilson is vice-president of the United Aircraft Corporation, senior vice-president of the United Aircraft Manufacturing Corporation, and general manager of Chance Vought Aircraft.

Mr. Wilson is very well known indeed in the United States for his advocacy of air-cooled engines when he was chief of the engineering section of a bureau of aeronautics in 1922. During that time he was largely responsible for the American Navy placing orders for engines of this type, and after his retirement he became president of the Hamilton Standard Propeller Co., then president of the Sikorsky Aviation Corporation, and eventually president of the Chance Vought Corporation until

SEATING TWO, side by side, the American Aeronca is shortly to be built either at Hanworth or Aldenham, by Lightplanes Ltd. Mr. B. Brady has the British Empire manufacturing rights for this American design and, with the collaboration of J. A. Prestwich and Co., of motor cycle fame, who will build the engine, it is hoped to market it at £395. The fuselage is of welded steel tubes and the wing of wood and metal. The cruising speed will be 85 m.p.h. and range about 300 miles.



this and the other United Aircraft interests were blended into the United Aircraft Manufacturing Corporation.

Mr. Wilson served in the U.S. Navy from 1904 until 1930, and was chief engineer on board the U.S.S. *Arkansas* throughout the war. After the war he qualified as a naval air pilot, and was Chief of Staff, Aircraft Squadrons, Battle Fleet, from 1927 to 1928. He is an Associate Fellow of the R.Ae.S.

Standardisation

THE British Standards Institution has issued its half-yearly handbook, which includes an indexed list of current British Standard specifications. The report on the activities of the three divisions—engineering, building and chemical—provides interesting reading and shows the amount of valuable work voluntarily carried out by the Institution's 700 technical committees. Copies are available from the British Standards Institution, Publications Department, 28, Victoria Street, London, S.W.1, price 1s. 4d. post free.

Learning by Post

EVERY keen young man, and especially those who are already engaged in the aeronautical profession, wants to improve his knowledge of the subject. This he can do in some cases by attending evening classes arranged by his employers, but very often this is not possible. Even where such classes are arranged, it may well be the case that an individual can assimilate knowledge at a faster rate than others in the class. Where this happens a postal course will often meet the need. Learning by post allows study to be done in the student's own time, and his rate of progress is governed entirely by his industry.

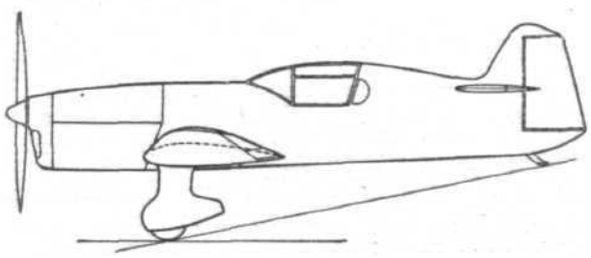
An institution which has arranged a comprehensive curriculum of courses is the British Institute of Engineering Technology, of 29, Oxford Street, London, W.1. Courses covering air navigation, ground engineering (all categories), air transport, aerodynamics and aircraft design are available, and in addition courses which cover the needs of the examinations held by the Royal Aeronautical Society (which body has approved the courses).

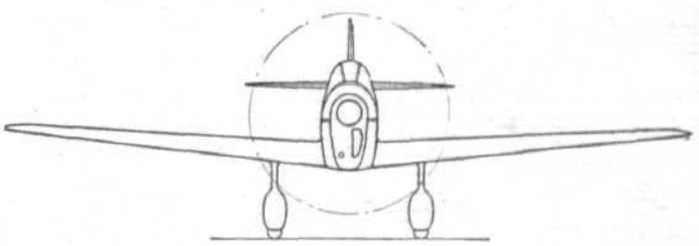
We have examined specimen lessons, and find them both clear and concise, as well as being comprehensive in their scope. Students who follow them should have little difficulty in mastering their subject

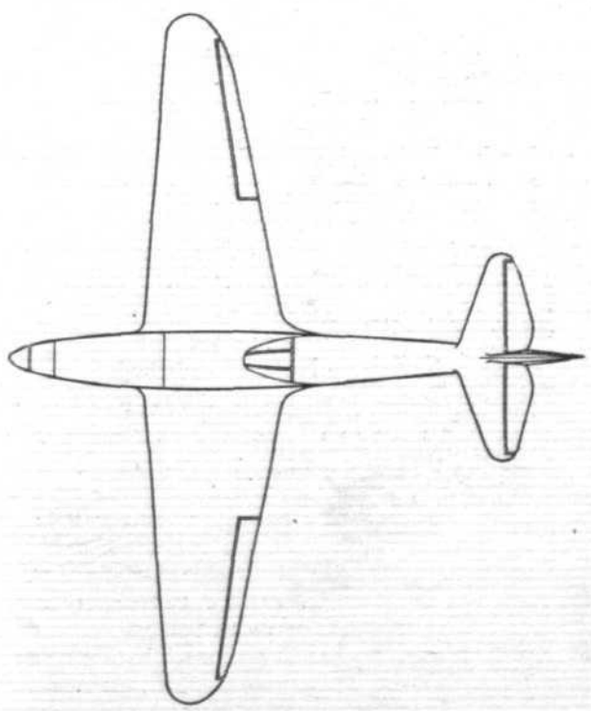
For "Pou" Constructors

CONSTRUCTORS of *Poux-du-Ciel* (euphemistically called Flying Fleas in England) will be interested to learn that a company called the Flea-Type Plane Construction Co., Ltd., has been formed, with its office and works at 9, High Street, St. John's Wood, London. It intends to provide workshop accommodation, tools, materials and completed *Pou* parts. The company will offer the expert assistance of ex-R.A.F. mechanics and have constructors' machines flown before they themselves try them. Commander Spenser Grey is responsible for the scheme.

SOME MEW GULL FACTS and FIGURES







PERCIVAL MEW GULL

High-Speed Single-Seater Monoplane

DE HAVILLAND GIPSY SIX ENGINE—200 H.P.

Dimensions

Span	24ft. (*7,32 m*)
Length	20ft. 3in. (*5,56 m*)
Height	6ft. 10in. (*2,07 m*)
Wing area	78 sq. ft. (*7,24 m²*)

Weights and Loadings

Weight empty	1,080 lb. (*490 kg*)
Gross weight	1,800 lb. (*816 kg*)
Wing loading	23 lb./sq. ft. (*112,29 kg/m²*)
Power loading	8.9 lb./h.p. (*4,036 kg/cv*)
Maximum speed	220 m.p.h. (*354 km/hr*)
Cruising speed (V.P. airscrew)	190 m.p.h. (*306 km/hr*)
Cruising speed (fixed-pitch airscrew)	175/180 m.p.h. (*282 km/hr*)
Rate of climb at sea-level	1,400ft./min. (approx.) (*7,11 m/sec*)
Range (normal)	575 miles (*925 km*)
Range (maximum)	1,200 miles (*1,931 km*)
Stalling speed (with flaps)	64 m.p.h. (*103 km/hr*)
Landing speed (with flaps)	58 m.p.h. (*93 km/hr*)
Take-off run (fixed pitch airscrew)	210 yards (*192 m*)
Landing run	180 yards (*164 m*)

The news that Lord Wakefield has presented to the R.Ae.C. a cheque for £250 to be awarded to Capt. E. W. Percival as a special prize in recognition of his performance in the King's Cup race lends interest to this general arrangement drawing and data—not generally known—of the Mew Gull. It will be recalled that, although he was not placed in the Final, Capt. Percival averaged 208.91 m.p.h. over the 350 miles and made the fastest lap of the day with a speed of 211.2 m.p.h. The machine was entered for the race by H.R.H. The Duke of Kent.

THE INDUSTRY

Winning Equipment

THE equipment of the winner of the Folkestone Trophy Race (reported on pages 302 and 303) used Lodge plugs, Stanavo fuel, and Castrol oil.

About Aluminium Sheet

MUCH extremely useful data for users of aluminium sheet is contained in a wall chart obtainable from The British Aluminium Co., Ltd., Adelaide House, King William Street, London, E.C.4.

Bellanca's Speke Plans

IT is understood that progress is being made with the Bellanca Company's plans for establishing a factory at Speke, Liverpool. The International Aircraft Distributing Company is said to have paid a deposit of £2,000 to the American Bellanca Company in respect of British manufacturing rights.

Another K.L.G. Extension

YET another extension has just been made to the K.L.G. factory at Putney Vale, two large bays having been added. They are being equipped with self-contained electrically driven machines, so that the shop will be absolutely clear of overhead shafts and belting. The factory now employs nearly a thousand workpeople, all, of course, engaged on the manufacture of K.L.G. sparking plugs.

Eyesight at 300 m.p.h.

EVERY pilot knows how important it is to have comfortable and efficient kit, even down to the smallest item, when a serious job that requires full concentration is on hand. This is equally true of high-speed car work, and it is interesting to note that for his recent successful record attempt Sir Malcolm Campbell wore Meyrowitz "Luxor" goggles with specially hand-ground lenses.

Cirrus Spares

IT has been rumoured, apparently, that, on production of the new range, earlier Cirrus-Hermes engines will no longer be serviced. The makers, the Cirrus-Hermes Engineering Co., Ltd., of Brough, Yorks, point out that there is no foundation for this rumour and that service will continue as long as it is required.

They add that Phillips and Powis Aircraft, Ltd., who acquired the stocks of Cirrus Mark II and III engines and spares, are servicing the earlier types as used in Hawk machines, and are maintaining good stocks.

Aerodrome Levelling

EN-TOUT-CAS, LTD., of Syston, Leicester, have in hand at the present time a large number of aerodrome levelling contracts. Their workmen are to be found at the Bristol aeroplane flying training school, which is being established at Yatesbury; at Desford, where an aerodrome is being enlarged for Reid and Sigrist, who are also establishing one of the new flying training schools for training R.A.F. personnel; and at Reading Aerodrome, where buildings for the new training school are also in their hands.

Airports which are being constructed or enlarged include those for the City of York, for Brighton, Hove and Shoreham, and for Bristol.

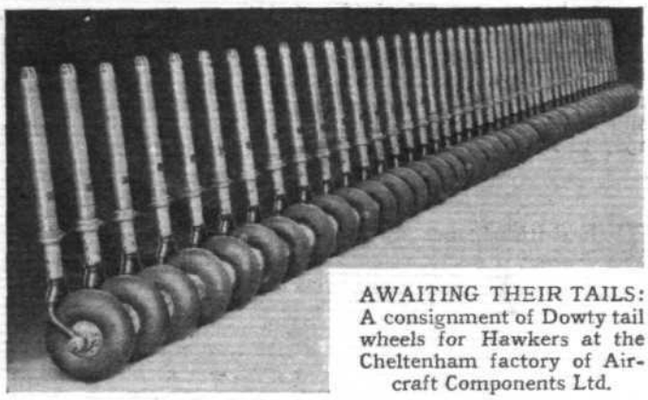
Apart from this work the Air Ministry have also given a number of contracts for aerodrome work to the Ministry of Transport.

NEW COMPANIES

In the notes below, for reasons of space, the "objects" of new companies are usually somewhat abbreviated.

AVIATION TRUST MANAGERS LIMITED, registered as a private company on August 30th, with a nominal capital of £20,000 in £1 shares. Objects: to constitute, manage and carry on trusts or pools concerning any shares, etc. First directors to be appointed by the subscribers. Solicitors: Farman Daniell and Co., Bank Chambers, 329, High Holborn, London, W.C.1.

TIMKEN HOLDINGS LTD. Registered as a private company on August 31. Nominal capital, £125 in 1,250 "A" and 1,250 "B" shares of 1s. each. Objects: to carry on the business of an investment and trust company; to acquire from Michael B. U. Dewar certain shares in British Timken Ltd., to manufacture, and repair parts of motor vehicles, aircraft, etc. First directors: M. B. U. Dewar, W. Dallow, F. J. Pascoe, A. J. N. Duncan. Registered office: 10, Mayfair Place, London, W.1.



AWAITING THEIR TAILS: A consignment of Dowty tail wheels for Hawkers at the Cheltenham factory of Aircraft Components Ltd.

CINQUE PORTS AVIATION LTD. Registered as a private company on September 4. Capital, £5,000 in £1 shares. Objects: to carry on business as instructors in aviation, dealers in aircraft and engines, transporters of passengers and goods, etc. Subscribers (each with one share): W. E. Davis, Mrs. May J. A. Davis. Permanent director: W. E. Davis. Registered office: Lympne Airport, Kent.

CINQUE PORTS FLYING CLUB LTD. Private company, registered on September 4. Capital, £100 in £1 shares. *Objects: to carry on business as instructors in aviation, dealers in aircraft and engines, transporters of passengers and goods, and that of a flying club.* Subscribers (each with one share): W. E. Davis, Mrs. May J. A. Davis. First director: W. E. Davis and such others as he may nominate. Registered office: Lympne Airport, Kent.

AIRCRAFT INDUSTRIES CORPORATION LTD. Registered as a private company on September 5, with a nominal capital of £100 in 400 ordinary shares of 5s. each. Objects: To form and develop companies, etc., concerned in the manufacture or working of aircraft. First directors are to be appointed by the subscribers. Clifford-Turner and Co., 11, Old Jewry, London, E.C.2.

FLEA-TYPE PLANE CONSTRUCTION COMPANY, LTD. Registered as a private company on September 11, with a nominal capital of £100 in 2/- shares. *Objects: to carry on business of aeronautical experts and consultants, manufacturers of and dealers in aircraft, motor vehicles, etc.* First directors are: Cdr. Spenser D. A. Grey, R.N., D.S.O., Georges Pigaghe. Registered office: 10a, New Bond Street, London, W.1.

INCREASES OF CAPITAL

AIRCRAFT COMPONENTS, LTD., *Grosvenor Studios, Grosvenor Place*, Cheltenham. The nominal capital has been increased by the addition of £29,000 in £1 ordinary shares beyond the registered capital of £1,000.

AIRCRAFT EXCHANGE AND MART, LTD., 7, Park Lane, W.1. The nominal capital has been increased by the addition of £10,000 in £1 ordinary shares beyond the registered capital of £15,000.

BRITISH CONTINENTAL AIRWAYS LTD. The nominal capital has been increased by the addition of £25,000 in £1 shares, beyond the registered capital of £25,000.

CHANGE OF NAME

ARROW AIRCRAFT (LEEDS), LTD., 4, Little Russell Street, Whitehall Road, Leeds. Name changed to Arrow Aircraft, Ltd. on July 26th, 1935.

AERONAUTICAL PATENT SPECIFICATIONS

(The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

(Published September 5, 1935.)

4722. CARIDROIT, J., and S.C.E.M.M.I.C. Blades of screw propellers, screw fans, and screw pumps (433,618).
4953. AKTIEBOLAGET-MILO. Aeroplanes driven by constant-pressure gas turbines (433,383).
5644. HILNY, S. Aeroplanes (433,474).
18515. SPERRY GYROSCOPE CO., LTD., and HARDING, W. G. Gyro compasses (433,494).
26788. CONSTANTIN, L. Automatic-piloting devices (433,404).
933. SOC. ANON. DES USINES GALLUS. Method and apparatus for determining on an aeroplane the speed of the aeroplane relative to the earth and the drift of the aeroplane (433,598).
30475. THORNTON, A. A. (Soc. Anon. Brevetti A.L.I.T.). Aircraft propellers with variable pitch and diameter (433,036).
3851. COBHAM, SIR A. J., and COBHAM AVIATION LTD. Apparatus for refuelling aircraft in the air (432,908).
22477. LYMAN, W. H. Aircraft propeller (432,931).
25575. SOC. ANON. ALFA ROMEO. Variable-pitch screw-propellers (433,009).
36111. GALLI, L. C. Safety device for use by drivers of aeroplanes, motor-cars and like vehicles (433,173).
1987. CAOUTCHOUC NOUVEAU SOC. ANON. Tanks, more particularly for carrying liquid fuel in aircraft (432,948).
420120. FAIREY AVIATION CO., LTD., AND ANOTHER. Undercarriage of aircraft.

(Published September 19, 1935.)

36025. KAY GYROPLANES, LTD., KAY, D. and DYER, J. W. Revolving wings or blades of aircraft (434,017).
5197. GENERAL ELECTRIC CO., LTD., BARSDORF, L. W. and VILLIERS, W. A. Beacons for aircraft and the like (433,715).
5308. GREEN, H. N. Navigation lights (433,948).
5698. FRASER, H. Braking means used with bogies for travelling suspended cars, aircraft, or the like (433,726).
5736. SHORT, H. O. and GOUGE, A. Aircraft (433,795).
5844. LORENZ AKT. GES., C. Aeroplane landing systems employing electromagnetic waves (433,873).
26458. MULLER, M. Propeller arrangement for aircraft (433,989).
29840. FAIREY AVIATION CO., LTD., and BRAY, F.C. Method of joining sheet-metal plates (433,992).
4631. BLACKBURN AEROPLANE AND MOTOR CO., LTD., and RENNIE, J. D. Seaples (433,925).